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HEROIC AIRMEN  
AND THEIR EXPLOITS







Flight-Commander W. L. Robinson, V.C. By Dudley Tennant.  
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# HEROIC AIRMEN

## AND THEIR EXPLOITS

BY

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the World-War,' &c.*

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TO THE  
MEMORY OF THE HEROIC AIRMEN  
WHO HAVE  
LAID DOWN THEIR LIVES IN THE SERVICE  
OF THEIR COUNTRY



## AUTHOR'S NOTE

ACKNOWLEDGEMENT is due in many directions, to various friends for supplying interesting information, and to the authors of various books and articles.

These pages, however, are far from being of a technical nature. The chief aim is to awaken the interest of the reader and throw fresh light on heroic deeds.

E. W. W.

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'All our airmen are heroes, at home and in France, and the gratitude of the nation is due to them for the splendid success with which they have got the upper hand of the air service of the enemy.'

—*The Daily Press*, October 2, 1916.

# HEROIC AIRMEN

## CHAPTER I

### BY WAY OF INTRODUCTION

WE approach an intensely interesting subject. Indeed, there is the danger that we may be tempted to dwell on thrilling achievements before learning what those achievements really mean. We have all talked freely in the past of airmen and flying; yet how limited has been our knowledge! These pages will not, however, touch ground of a purely technical nature. Matters intricate and involved will be avoided. Harm rather than good might come from trespassing on ground presided over by experts. But there is a middle course: we may learn sufficient to appreciate in a fuller and deeper sense the achievements of our heroic airmen.

Our subject is wide, as wide, indeed, as the heavens. We must needs cover

much ground, and must regulate our pace accordingly. Much as we may be tempted to dwell upon this or that branch of the subject, we shall often be compelled to pass on. For this is a book of heroic deeds, and our aim in touching briefly upon the birth and early development of various forms of aircraft will chiefly be with the view of giving a fuller and deeper meaning to the achievements of such men as Lieutenant Robinson, V.C., and Lieutenant Warneford, V.C. Happily there are many such heroes.

‘I was not the only one to go up after the Zeppelin,’ Lieutenant Robinson said in his first public speech. ‘Men have gone up in conditions of almost certain death, and some have met their death in facing the murderers who have come over here. There are men, friends of mine, who have been maimed for life by going up just on the off-chance of strafing them on absolutely impossible nights—misty nights, when it is exceedingly difficult to land, and the ground cannot be seen when you are up. They get into the clouds, lose control of their machines, and crash to earth. These deeds are hundreds of times more heroic than what I did. It was merely my good fortune.’



## AND THEIR EXPLOITS 13

A brave speech, worthy of a true hero !  
We shall do well if in the course of these  
pages we can get into closer touch with  
men of such stamp.

## CHAPTER II

### THE BIRTH OF THE AIRSHIP

PROGRESS in the construction of aircraft has been rapid of recent years, but there was a long period of experiment and preparation. It is a long flight from the aircraft of to-day back to the efforts of the Robert brothers in 1784.

The Robert brothers' experiments took the form of a balloon shaped like a melon, made of silk carefully proved, and measuring 52 feet in length and 32 feet in diameter. The gas employed was pure hydrogen. Underneath the envelope was suspended a long, narrow car, in general idea not unlike that used on some modern airships, and three pairs of oars with blades made like a racquet-frame, covered with silk, and a rudder of similar material.

The two brothers, accompanied by a third person, went up in this early dirigible and succeeded in describing a curve of

one kilometre radius, thus showing that, at any rate, they could deviate in some measure from the wind then prevailing. But at the time of the ascent there seems to have been very little opposition in the way of wind pressure. Favourable weather was naturally chosen. Nevertheless, something was attempted and something done, paving the way for further efforts.

Another airship, which led to a thrilling adventure, was built in due course. This was fitted with an internal air ballonet. An ascent was bravely attempted, but the ship got into a strong air eddy, which tore away the oars and rudder and detached the air-bag from its sustaining cords. This airship, however, is said to have reached a remarkable height for those days—no less than 16,000 feet! This, however, was *not* intentional.

Another airship worthy of note was the dirigible built in France by Henri Giffard. This took a spindle shape, measuring 143 feet in length and 39 feet in diameter. It had a 3 h.-p. steam engine and an 11 foot screw propeller. The first trip was made in September, 1852. Six miles were covered in conditions not entirely favourable, and it is recorded that several further journeys were made. Ten years, however,

passed before marked progress was shown in the construction of this type of dirigible.

Tissandier was the next in the field. His dirigible was not unlike previous efforts in shape and construction; but now an electric motor and a bichromate battery were employed, and a speed of eight miles an hour was reached.

Next came Captain Charles Renard, who made marked progress by building an envelope with a 'true streamline.' The car was suspended by means of a huge sheet placed over the back of the airship, to which were attached suspensory cords. The cubic capacity of the airship was 66,000 feet. It was kept rigid by means of an internal air ballonet, which was kept full by a fan blower coupled to a motor. It had a car 108 feet in length, which helped to steady the airship, and indeed played a somewhat similar part to the spar employed in later airships of the semi-rigid type. An electric motor, weighing 220 lbs., was installed, which developed 9 h.-p. The first trial trips were made in 1884, and were considered at the time remarkably successful so far as navigation was concerned. Indeed, it is recorded that on one occasion this dirigible flew round Paris at an average speed of  $14\frac{1}{2}$  miles

an hour—a remarkable achievement at the time.

Clearly there was now a future for airships. Germany had recognized this for some while, and had not been idle. Baumgarten and Wolfert built an airship in 1879 with a benzine motor, but when making an ascent at Leipzig the vessel got out of control, fell to the ground, and was hopelessly wrecked.

In 1897 Wolfert made further experiments, which cost him his life. A fire broke out in the benzine container of the new ship, with the result that the inventor and his assistant were killed.

The same year saw an effort on the part of an Austrian named Schwartz, who built an airship of sheet aluminium. This, however, proved a leaky structure. It descended and came to a sudden end. Schwartz, however, was the first to build a rigid airship with a petrol motor, and there is a sense in which his efforts led to the modern Zeppelin.

With that airship—the modern Zeppelin—with its intricate construction and remarkable capacities of speed and distance, its carrying powers, its evil missions, its tactics when under fire—we shall deal later.



## CHAPTER III

### THE PIONEER WORK OF M. SANTOS DUMONT

THE efforts of M. Santos Dumont call for special reference. He contributed greatly to the science of aerostation, and may be considered one of the foremost of the flight pioneers. He was a man of remarkable industry, perseverance, and courage.

His first noteworthy effort in construction was in 1898, when he made a cylinder of varnished silk,  $82\frac{1}{2}$  feet in length, with pointed ends, and measuring  $11\frac{1}{2}$  feet in diameter. An internal air ballonnet was fitted, and an engine giving 3 h.-p. A balloon basket was hung beneath the envelope. There was a two-blade propeller, whilst shifting weights controlled the poise of the ship, steering being effected by means of a rudder composed of strong silk over a steel frame.

Comparative success greeted the venture. The airship left the Zoological Gardens in

Paris and performed various evolutions, in spite of a gentle wind. Later, however, disaster threatened the ship and its distinguished pilot, owing to too rapid contraction of the gas whilst the ship was in the act of descending. But a calamity was averted by some schoolboys, who with commendable foresight caught hold of the tail rope of the airship and drew it along kite fashion with such speed that a gentle landing was effected.

At a later date, being encouraged by the offer of a prize, M. Santos Dumont built a new and larger airship with the view to flying from St. Cloud, round the Eiffel Tower, and back to the starting-point within thirty minutes. This new ship was 109 feet in length and 17 feet in diameter. It was fitted with a 4-cylinder air-cooled motor, driving an enormous propeller of 26 feet in diameter, which gave a thrust of 120 lbs. at 140 revolutions per minute. Among other novelties, water ballast was used, and piano wires replaced the old type of suspension cords.

An attempt to earn the prize was made in July, 1901. At 6.30 in the morning the airship started from St. Cloud, reached the Eiffel Tower, and made a successful turn. But the weather conditions were



adverse to the venture. A wind arose, and the return journey took thirty minutes.

Not to be outdone, Santos Dumont made another attempt in August of the same year. He failed again, but soon got to work upon yet another airship. This developed an ascensional force of 1,158 lbs., and was driven by a 12 h.-p. 4-cylinder motor which gave a thrust of 145 lbs. With this ship, on October 19, 1901, Santos Dumont started for the Eiffel Tower hampered by a side wind of 20 feet a second. Nevertheless, he reached the tower in nine minutes, but owing to allowing insufficient clearance he barely missed colliding with it. However, he got the airship under control and returned to his starting-point in  $29\frac{1}{2}$  minutes, thus winning the Deutsch prize of 125,000 francs and an additional reward of 125,000 francs.

The greater part of the money was given by the aviator to charity, showing clearly that in his experiments M. Santos Dumont had other aims than self-gain. A wit has observed that he was a 'man of high-soaring motives,' which is, in fact, entirely true. His aim was to construct an airship that would prove of real service to mankind, and in his experiments he sacrificed both time and money, and, of far greater

importance, he made his ascents at great risk to his personal safety at a time when 'air courage' was comparatively new, and in conditions which made no immediate call to patriotism and duty. He was of the 'stuff' of which the true hero of the air is made, taking with a brave heart serious risks, and going from flight to flight with no other thought than achieving the end he had in view.

## CHAPTER IV

### FURTHER LINES OF PROGRESS

PROGRESS toward the modern airship has, as we have seen, been by short and laborious flights. The disappointments and disasters have been almost numberless. Endless patience, perseverance, and dauntless courage have been demanded. Moreover, in the past the would-be master of the air has needed very considerable resources. On account of a lack of funds many promising designs have come to no definite end. In the earlier days of flying the work of construction was done chiefly by men of leisure and means. Not till a comparatively recent date has the work been put on a commercial basis and done by large manufacturing firms.

One of the chief difficulties to be overcome was to discover an object of sufficient strength to be driven through the air, and yet so light that it could displace more

than its own weight of air. No very great difficulty was experienced in constructing the spherical balloon, for the sphere is, of course, the natural shape which any flexible envelope will take. No framework was needed to stiffen the flimsy covering of such a balloon. The sphere is, in itself, a natural shape, and it has no tendency to change. The distorting action upon it is that due to the weight of the car; but by using a large net bag, enclosing the whole balloon, this has been so spread that the distortion is very slight, and the natural shape not interfered with to a very appreciable extent.

The great pressure of the air has, of course, constituted many difficulties. At sea-level the air pressure is 14.7 lbs. per square inch. A vessel containing a vacuum has therefore to be strong enough to support 15 lbs. on every square inch of its surface. To make the envelope of a balloon strong enough to contain a vacuum is impossible for the purpose. Too great weight would be required.

It has been found that the best course is to fill the balloon with hydrogen, the lightest of gases. In this way the difficulty as regards pressure is overcome, for the hydrogen presses upwards as strongly as

the air presses inwards. Stated in round figures, 1,000 cubic feet of hydrogen weighs about  $5\frac{1}{2}$  lbs., and the same quantity of air about 80 lbs. It has been found, then, that 75 lbs. represents the gross lifting weight, and that from it must be deducted the weight of the envelope to arrive at the desired lifting effect.

With the increased size of the balloon many difficulties have been removed, for the lifting weight increases faster than the superficial area of the envelope. The contents of a sphere increase as the cube of a diameter, but the area grows only as the square of the diameter. Therefore, if you double the diameter of a balloon you increase its capacity and consequently its gross lift by eight times. Even if it should be necessary to increase the thickness of the fabric of which the balloon is made, there is still a good margin left in favour of the larger balloon.

But the aim has been to obtain something more than the ordinary spherical balloon, which simply drifts in the air-currents. Such a balloon is helpless as far as direction is concerned. It simply 'goes with the wind.' Its weight may be varied, but not its direction. The aim of the inventors of steerable balloons has



been to overcome helpless drifting by means of propellers and rudders, and by various means designed to avoid loss of gas in ascending and descending.

Inventors in time past found that it was no easy matter to drive a large spherical object of a light and flimsy construction through the air. With the huge area which a spherical balloon offers to the wind, it was found impossible to make any headway at all, except in perfectly calm weather, or with the wind behind. Consequently the steerable balloon took on an elongated shape, the nose growing more and more pointed, so that it could 'cut' the air.

But now a fresh call arose for new ways and means of construction. The simple bag, which served in spherical form, was useless for the new design. A rigid framework of suitable lightness and strength was called for—an extremely difficult matter. Indeed, even in the case of a ship built for the sea there are troubles in this direction. 'The water supports it all along, while the load which it carries is more or less in lumps, distributed irregularly from end to end. A ship in still water, without any attacks by storms from without, is in danger of breaking its

back. If it be divided up into short sections some will be found to possess great buoyancy and little load, while others will be carrying loads far in excess of their buoyancy. The ship must therefore be strongly constructed, so that the lightly loaded parts may be able effectually to assist the heavily loaded parts. As great longitudinal stiffness is required in a ship as in a bridge. In fact, the modern ship is actually modelled upon a railway bridge. The method of construction which made the great liner of to-day possible was invented by I. K. Brunel, who got the idea from the Menai Straits Bridge of Robert Stephenson.'

Longitudinal stiffness is, then, an absolute essential to any structure of the kind now in mind. The buoyancy must be fairly constant from end to end, the cars being suspended at intervals. That is to say, it has been found that the necessary stiffness must be attained whereby the weight of the suspended cars will be distributed in due proportion to every part of the balloon, not simply to the parts immediately above.

This has been attained by means of a cleverly constructed framework of aluminium, and on a line with this improvement have come a number of drum-



shaped gas-bags, made of rubber fabric and placed in allotted spaces in the framework. A kind of keel has also been introduced beneath the frame, giving additional stiffness and keeping the airship from rolling, just as in the case of seafaring craft.

Improvement has followed improvement. In some designs two light frames have been spread out from the main structure of the airship, each carrying a propeller. Frames have also been introduced at the back of the airship, thus giving four propellers in all—two forward and two aft. With these have come fins or planes, designed with the view to keeping the nose of the airship foremost to the wind. Moreover, groups of planes have been employed, lying in horizontal position but capable of movement, and making it possible to steer upward at both ends or at one only, as required.

Whilst these structures, which led to the Zeppelin, were in course of preparation, other designs of importance were being made, which led by degrees to airships of the nature of the Parseval. In these designs there was no elaborate framework. The balloon portion was in one—a huge shape, stout in the middle with a

pointed tail and rounded nose, and carrying triangular planes, placed horizontally. This strange shape, not unlike a fish, was maintained simply by the formation of the bag, distended by pressure of the gas. Difficulties as regards the car were overcome by long ropes, the car being suspended some distance below. The ropes were attached to the balloon at intervals, thus distributing the weight of the car throughout almost the full length of the balloon.

Later came improvements which permitted the car of the airship to slide, so to speak, upon the suspending ropes, thus giving greater freedom to the action of the propeller. To the design were also added two smaller ballonets, inside the large one, carrying air-ballast. And by means of clever manipulation these bags made it easier to keep the airship at an even keel. This aim was also aided by a small horizontal plane or elevator placed beneath the bow. Underneath the stern was hung a vertical plane, to the end of which the rudder was hinged. The motor was in the car, and drove two propellers, supported upon a framework, between the car and the balloon. These craft gradually grew to about 300 feet in length, and about 50 feet in diameter at the thickest parts.

Other designs, which led to the Astra-Torres, an airship of French origin, had a balloon of 'trefoil' shape. The car was hung low, as in other models of the kind, and was distributed by a number of wires, some of which passed into the balloon itself and were attached inside. Indeed, it was this mode of attaching the car that led to the trefoil shape. Two planes were attached to the rear, and two elevators and the rudder were placed beneath the rear end.

In another fairly successful design of a similar nature a long girder ran underneath the balloon, supported by wires from the balloon, the car being attached to the centre, thus distributing the weight throughout the whole length of the balloon.

Many of these designs had their origin in France, but the British have not been idle. Many improvements have had their birth in England, and we know that these, as in the case of other designs here mentioned, have led to definite results. Out of persevering efforts, checked again and again by misfortune and often by disaster, have come the modern airships with which we are familiar. In their wake are many victims. Yet, as we have seen, and shall see afresh in these pages, they have called forth many heroic deeds.

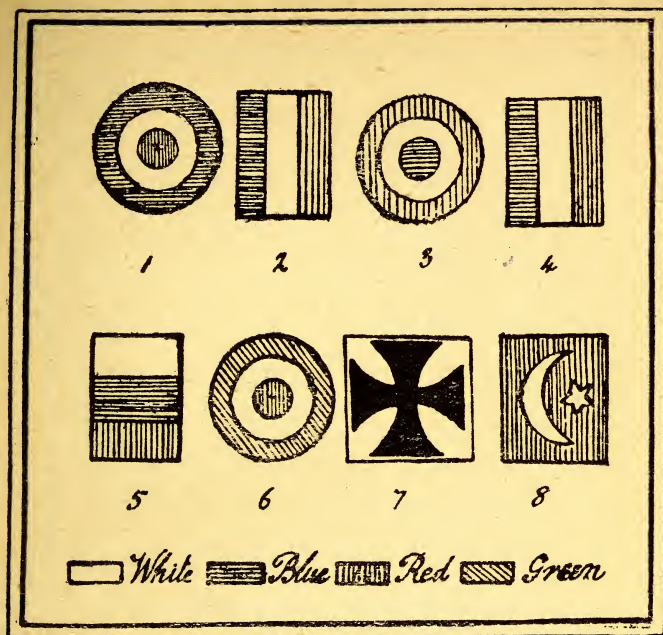
## CHAPTER V

### THE BIRTH AND GROWTH OF THE AEROPLANE

It is to the honour of the British nation that one of the first principles of the biplane was proposed and explained by a British subject, Mr. F. H. Wenham, as far back as 1866. He pointed out that the lifting power of a surface can be economically obtained by placing a number of smaller surfaces one above another. Indeed, flying-machines were built by Wenham on this principle, with appliances for the use of his own muscular power. He did not, however, accomplish actual flight, although valuable results were obtained as regards the driving power of superposed surfaces.

After various further experiments in the same direction, it fell to H. von Helmholtz to emphasize the improbability that man could drive a flying-machine by his own





#### DISTINCTION MARKS USED BY THE BELLIGERENTS IN THE WAR.

1. British. 2. Marks on rudder of British machine.
3. French. 4. Marks on rudder of French machine.
5. Russian. 6. Italian. 7. German and Austrian. 8. Turkish.

The British marks consist of circles, having a red and blue circumference, with a white or (occasionally) the natural colour of the fabric in between. The positions for these circles are :—Two on the upper surface of the top plane near the wing tips; two on the lower surface of the bottom plane, also close to the tips; one on each side of the body between the pilot's seat and the tail. Sometimes simply a red circle is used on naval machines. The rudder is painted with three vertical stripes in the following order counting from front to back : blue, white, red. The French distinction marks are similar to the British, with the exception that the centre of the circles is blue and the circumference red. The Belgian, Serbian, and Roumanian marks are similar to the French. The Russian marks are lateral stripes on the planes in the order from the leading to the trailing edge of the wing : white, blue, red. Our Italian Allies incorporate their national colours in a rosette on their machines. The device has a red centre, then a white ring with a green circle outside.

muscular power. A period of stagnation followed. But interest was revived later, and fresh efforts were made, varying in importance, down to the experiments of Sir Hiram Maxim and Professor Langley.

These two eminent men, who took up the subject of flying in the last decade of the last century, came to their task with great scientific knowledge. Hitherto flying was associated in the minds of the public with failure and folly. Indeed, Sir Hiram Maxim once remarked that at the time he took up the subject it was almost considered a disgrace to any one to think of it. It was thought 'quite out of the practical question.' But the two great men now in mind were not to be turned aside by ridicule. 'They rescued aeronautics from a fallen position, and fired in its cause the enthusiasm of men of light and learning.'

Sir Hiram Maxim's experiments were on a large scale. He built the largest flying-machine that had then been constructed. It had 4,000 feet of supporting surface and weighed 8,000 lbs.; the screw propellers measured 17 feet 11 inches in diameter, the width of the blade at the tip being 5 feet. The boiler was of 363 h.-p. This remarkable machine had wheels and

a railway line, and was restrained from premature flight by a system of wooden rails. But it proved unruly. It burst through the wooden rails, and flew in a wholly unexpected fashion for 300 feet !

Professor Langley's experiments carried flying still further. In 1896 he built a machine that flew for more than three-quarters of a mile. In this machine there was only 70 square feet of supporting surface, and the weight was only 72 lbs. It had a 1 h.-p. engine, weighing 7 lbs.

But Professor Langley had still to build a machine that would carry a man. This he did in due course, but when the machine was being put to the test over water, and at the very moment of being launched, it caught in the launching ways and was pulled into the water. Progress had, however, been made, and it is well worthy of note that of recent date an American aviator has unearthed Langley's machine and flown on it, thus giving posthumous honour to the inventor.

Following the professor's efforts, further progress was made by Mr. Octava Chanute, who introduced the important principle of making moveable surfaces. He also made use of superposed surfaces. But it was reserved for the two famous aviators,

the brothers Wright, to bring the desired conquest of the air to a definite point.

Their first practical experiment was with gliding machines at Kitty Hawk, North Carolina, in 1900. They endeavoured with comparatively small surfaces to raise their machines like a kite by the wind. But they found that the wind was not always in their favour and often blew too strongly for their method. Consequently, they abandoned the idea, and resorted to flight by gliding. Their machines now had two superposed surfaces. They also introduced two highly important principles, namely, a horizontal rudder in front for controlling the vertical movements, and the principle of warping or flexing one wing or the other for steering purposes. Later a vertical rudder was added.

Writing of these improvements, Mr. Eric Stuart Bruce, Vice-President of the Aerial League of the British Empire, remarks that their importance cannot be over-estimated: 'We have only to look at nature for their *raison d'être*, and observe the flight of seagulls over the sea. How varied are the flexings of nature's aeroplanes in their wonderful manœuvrings to maintain and recover equilibrium!'

A feature of these early experiments



was the placing of the operator prone upon the gliding machine, instead of in an upright position, to secure greater safety in alighting and to diminish the resistance. This, however, was only a temporary expedient while the Wrights were feeling their way. In the motor-driven aeroplanes the navigator and his companion were comfortably seated. After the experiment of 1901, the Wrights carried on laboratory researches to determine the amount and direction of the pressure produced by wind upon planes and arched surfaces exposed at various angles of incidence. They discovered that the tables of the air pressures which had been in use were incorrect.

As the result of these experiments the Wrights produced in 1902 a new and larger machine. This had 28.44 square metres of sustaining surfaces, about twice the area of previous experiments. At first the machine was flown in the manner of a kite, with the view of learning whether it would soar in a wind. Experiments showed that the machine soared whenever the wind was of sufficient force to keep the angle of incidence between four and eight degrees. Later, in 1903, screw propellers were applied and four flights made.

Definite progress favoured the venture. Two hundred and sixty metres were covered at a height of two metres !

In the following year, 1904, there was further marked progress, many successful flights, some 'circular,' being made. In the next year came an astonishing achievement: the Wrights flew no less than  $24\frac{1}{4}$  miles in half an hour. This was rightly deemed at the time a great flight forward. But a period of silence and seeming inactivity followed. It was not until 1908 that further revelations were made. It was then seen that the Wrights had not been idle. Indeed, it is said (and with obvious justice) that 'to the labours of the Wright brothers we owe the advent of the mobile and truly efficient military air scout.'

## CHAPTER VI

### FURTHER DEVELOPMENTS AND CERTAIN ENEMY MACHINES

THE earliest experiments in the construction of aeroplanes were, as we have seen, to a considerable extent made in France. The United States have also played an active part. Meanwhile England had not been idle. Mr. Henry Farman, the inventor of the Farman Biplane, was the first to apply the now famous Gnome motor, in which seven or more cylinders revolved. The influence of this motor in facilitating flight generally has been remarkable. The early forms of aeroplane engines had proved unreliable, owing to the great speed demanded. Indeed, it is said that if the aeroplanes of the great European War were flying over the enemy's line with old-fashioned engines they would drop down into hostile hands as quickly as dying flies from the ceiling on the first winter day.

Side by side with the efforts of Mr. Henry Farman in the construction of biplanes, M. Bleriot gave his attention to the construction of monoplanes. After attempts, which unfortunately brought disaster and disappointment, he produced a machine which astonished by its remarkable performances the whole aeronautical world.

Simplicity was the keynote of the Bleriot monoplane. The machine in which M. Bleriot flew over the Channel in 1909 has been described by a well-known member of the Aeronautical Society of Great Britain as 'stretching like the wings of a bird on either side of a tubular wooden frame partly covered with canvas and tapering to the rear, with two supporting planes, rounded at the ends. At the front was placed the motor, geared direct to a 6 feet 6 inch wooden propeller, and on a level with the rear end of the planes. Immediately behind the engine was a petrol tank, and behind that the aviator's seat. Near the end of the frame and beneath it was the fixed tail, with two moveable, elevating tips. The act of moving a lever backwards and forwards actuated the tips of the fixed tail at the back of the machine, and caused it to



rise and fall. Moving the same lever from side to side warped the rear surfaces of the supporting planes. The act of pushing from side to side a bar on which the aviator's feet rested put the rudder into action and steered the machine.'

Still fresh in the memory is the flight in which the Bleriot monoplane carried M. Prior from London to Paris, covering 250 miles in three hours and fifty-six minutes. Later, a Bleriot monoplane carried M. Garros up to a height of 5,000 metres. At this height the engine broke down, but in virtue of wonderful gliding powers the machine was landed safely. It was this same type of machine that flew over the Alpine peaks, and later carried the first aeroplane post, flying from Hendon to Windsor in seventeen minutes.

Another monoplane which calls for special reference is the Latham Antoinette monoplane, which enjoyed the great distinction of being the first to fly effectively in a wind. Before the invention of this machine, aviators had only dared to fly in favourable conditions. It consisted of large, strongly constructed wings. The motor was about 60 h.-p. At the rear of the machine were fixed horizontal and vertical fins. At the end of the tail

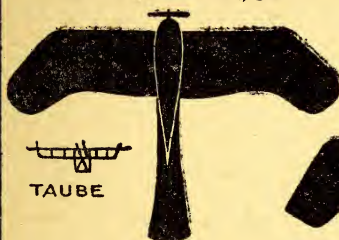
there were hinged horizontal planes for elevating or lowering the machine. The machine, with its ability to withstand high winds, gave great impetus to the adoption of the aeroplane for military purposes. Latham, the inventor, performed some remarkable feats, and must be accounted an heroic pioneer in the more recent history of flying.

Progress continued on the lines indicated. But it is impossible, for obvious reasons, to touch upon the modern types of machines employed by Great Britain and her Allies. We may, however, deal briefly with certain outstanding types of enemy machines.

One of the most familiar German machines is the Aviatik biplane. The vital parts of this 'fighting dragon' are fortified with metallic 'capot.' The rest of the fuselage is also armoured. In the forepart of the fuselage a space is provided allowing the observer free movement for scouting, photographing, &c. The machine can be quickly erected and dismantled. The supporting surface consists of two planes of unequal dimensions, the upper plane being the larger. Stability is assured by a fixed plane prolonged by a rudder. Two 'ailerons' at the back of the upper planes give lateral stability.

# AVIONS ALLEMANDS

MONOPLAN TAUBE



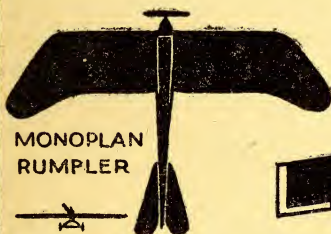
TAUBE

**TIREZ**  
sur ces Appareils

MONOPLAN GOTHA



GOTHA



MONOPLAN  
RUMPLER



RUMPLER



BIPLAN  
ALBATROS



ALBATROS



ZEPPELIN

REDUCED REPRODUCTION OF A DIAGRAM ISSUED AT THE EARLY PART OF THE WAR BY THE FRENCH WAR OFFICE, BEARING THE WORDS: 'GERMAN AEROPLANES, FIRE ON THESE MACHINES.'



Steering is effected by means of a vertical rudder placed between the two portions of the horizontal plane rudder.

Another familiar type, the Etrich monoplane, is on the lines of the German bird-shape design. The wing-shaped supporting planes have upturned wing tips at the back, which are flexed up and down for the purpose of lateral stability. The back part of the tail planes is also moveable, and can be flexed for elevating.

The Germans also have large numbers of the well-known Albatross biplanes and various monoplanes of the Taube design, and also many waterplanes of the Albatross type. An interesting feature of these machines is the fact that they are all double seated with the exception of the Argo type of monoplane.

The swiftly dashing scouting monoplane did not at first find favour with the enemy, but the war has brought many sudden and sweeping changes, and, following the much-vaunted Fokker, we learn of a German machine able to attain the astonishing speed of 120 miles an hour !

The Albatross, a much used type of German machine, was first made at John-nisthal, near Berlin (about 200 of these machines were made in 1913). Mercedes

motors are fitted, capable of attaining a high speed.

In the Rumpler monoplane, another well-known German type, the wings are again in the shape of a dove's wings, the ends being flexible. 'The stability of the apparatus,' writes a well-known authority, 'is assured both by the shape of the wings and their flexibility. It is at once a combination of the inherent stability type and the depending on the warping of surfaces.'

The Rumpler biplane, as in the case of the Aviatik, is remarkable for the space provided for the pilot and observer. In this case also the fuselage is strongly protected. The upper plane varies from that of the majority of German machines; it is not made to move in the centre. There is a short moveable central plane, attached to the fuselage by four tubes. The other planes are fixed to this central plane.

The Rumpler monoplane is shown, together with other German designs, including the Gotha monoplane, in a diagram issued in the early part of the war by the French War Office, bearing the words: *German Aeroplanes. Fire on these machines.* (See page 41.)

## CHAPTER VII

### THE ZEPPELIN AND OTHER MODERN AIRSHIPS

THE keenest interest and curiosity is very naturally felt in the Zeppelin airship. Much has been written concerning its peculiar construction—much that is founded on doubtful evidence, and much that is mainly true. At this point we shall limit ourselves to a brief description of the construction of the Zeppelin, and seek to show in simple terms how the type of airship rises and falls. With the heroic acts the Zeppelins have called forth we shall deal later.

Now, imagine a long cage tapering to a rounded point at either end. At intervals are thin walls or partitions of aluminium sheet, dividing the cage lengthwise into a large number of drum-shaped compartments, while every part is stiffened and straightened by crossed bars forming diagonal bracing, tying and holding all together into a structure of remarkable

strength. Such is the basis of a Zeppelin airship.

The whole of the framework is covered with waterproof fabric, the length of some of the patterns being 492 feet in length and  $47\frac{1}{2}$  feet in diameter.

Beneath is fixed a light framework, forming a kind of keel, and giving additional stiffness. In some designs a cabin is formed in the keel. The cars, which are not unlike the form of a boat, are hung under the keel, one near either end. Near the front, on either side, two light frames spread out, each of which carries one of the propellers, and another pair of frames are fixed in like manner toward the end. At the after end are a number of fins or planes, the purpose of these being to keep the nose of the ship foremost to the wind, as shown in a previous chapter.

Now as regards rising and falling. To many people the manœuvring of a Zeppelin in the air is still a matter of mystery. It is certainly not easy for the lay mind to grasp and hold the fact that a monster vessel made of metal, and weighing nearly 20 tons, can float in a medium through which a feather falls. The Zeppelin, in effect, is lighter than a feather, volume for volume, and this lightness is obtained



by creating an enormous space within the carcase of the ship and filling this space with hydrogen gas, which is about fifteen times lighter than air.

If we imagine that a steel boiler 50 feet long has the same width and height as a Zeppelin and weighs 20 tons, it is easy to understand that if this were filled with hydrogen gas it would not float in the air. But imagine the boiler to be drawn out until it was 500 feet long, and one gets some idea of the lightness of the Zeppelin structure. Each plate of metal in the boiler would be increased to ten times its normal length, and thus would become exceedingly thin. Of course, in the Zeppelin lighter materials are used, with the result that for a small weight we get an enormous volume.

Then, by filling this space with hydrogen the ship displaces its own volume of air, but this volume of air is so much heavier than the ship's weight that the vessel rises.

The most remarkable feature of the Zeppelin is the ingenious manner in which the volume of hydrogen is controlled, and through this control the altitude of the ship is regulated. In principle the method resembles that of the air bladder of a

fish. When the eighteen gas-bags of a Zeppelin are filled with hydrogen the ship is at its maximum of buoyancy or lightness. It then has a lifting power which unless restrained by heavy weights would take the vessel high up into the air until a thin atmosphere was reached, where the ship would float motionless in a medium of less density. But if we replace the hydrogen with air when the ship is held to the ground, we increase the weight of the vessel so much that it will not rise.

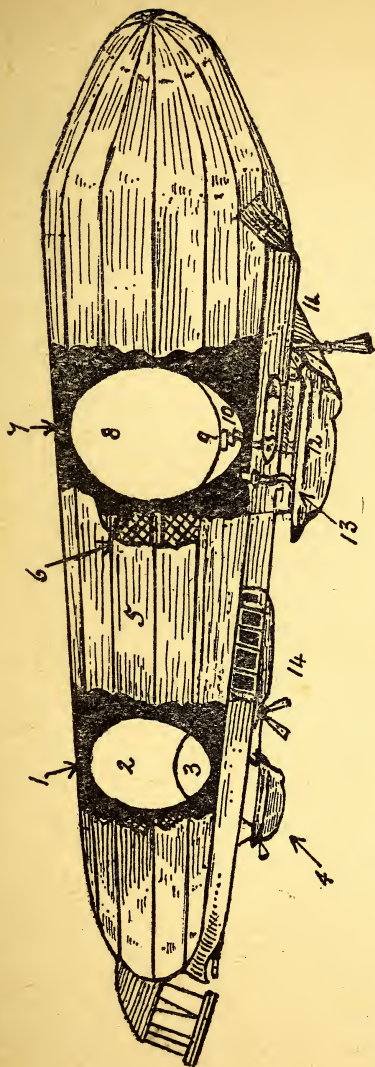
Thus in the Zeppelin, by the alternative use of light hydrogen and heavy air, we can so alter the weight that the vessel can be made to rise or sink. By a highly-developed system of tanks, pumps, and valves the relative volumes of hydrogen and air can be controlled with wonderful accuracy.

In the older system of airships the hydrogen was allowed to escape when it was desired to make the ship heavier, but the modern Zeppelin, when it takes hydrogen from the gas-bags, is able to store the gas in metal tanks under pressure, and it also has a reserve supply to make up for unavoidable leakage.

Each gas-bag is mounted above an air-bag, and when the gas-bag is inflated

to the maximum the air-bag is almost empty. The ship is then at its most buoyant stage. To reduce this buoyancy the air pumps are put in motion, and they force air under pressure into the air-bags. This pressure, acting on the gas-bags, forces out the hydrogen through pipes and non-return valves to the storage tanks. If at any time it is required to make the vessel ascend, the air-bags are deflated and the gas supply pipe with its pump is employed to force more hydrogen into the gas-bags. One thousand cubic feet of hydrogen have a lifting power of nearly 75 lbs. at sea-level, and this lifting power acts very quickly. Thus a Zeppelin changes its altitude rapidly when the weight is altered, and at the same time there is automatic control whereby the vessel can be kept at the same level if necessary. When a Zeppelin drops a bomb it suddenly becomes lighter, and it rises in consequence. This circumstance is very disconcerting to gunners, for if, say, a 200 lb. bomb were dropped, the ship would leap up nearly 200 feet in the air, unless the captain desired to check the ascent. The discharge of water ballast produces the same rising effect, and with almost equal suddenness the ship can sink by





SECTIONAL VIEW OF ZEPPELIN AIRSHIP, SHOWING THE ARRANGEMENT OF THE HYDROGEN AND AIR BALLONETS WHICH CONTROL THE WEIGHT OF THE AIRSHIP, THUS ENABLING IT TO RISE AND FALL AS REQUIRED.

(1) Section of one of the eighteen ballonets. (2) Hydrogen gas-bag partly inflated. (3) Air. (4) Rear gondola. (5) Outer covering of fabric. (6) Metal work. (7) Air space between gas-bag and frame. (8) Hydrogen gas-bag fully inflated. (9) Flexible gas-pipe. (10) Inner ballonet deflated. (11) Metal gas tank into which hydrogen is pumped under pressure. (12) Forward gondola. (13) Flexible pipe rom pump to ballonet. (14) Keel cabin.

(Diagram from a photograph taken from a point at the forward part of a Zeppelin Airship.)

using its powerful air pumps to press out the hydrogen. Moreover, when the Zeppelin is in motion it can use its elevating planes for changing altitude in the manner of an aeroplane. Thus, in addition to its power of steering from left to right in the same plane, and of climbing and descending along an inclined path by the use of the elevators, the Zeppelin can rise and fall vertically, and by its system of storage tanks these manœuvres can go on for a long period.

There is a good deal of difference of opinion as to the altitude which the Zeppelin can attain. When fully loaded in war trim the latest ships can rise to about 5,000 feet, but by the time they reach London, for example, and have used nearly half their fuel, ammunition, &c., they are several thousand feet higher. The practical limit to airship work is said to be about 10,000 feet. Above that height the cold is so intense, the air so rarefied, and the conditions for men, engine, and ship so distressing, that there is no inducement to rise further.

It is noteworthy that the latest type of Zeppelin is fitted with a switchboard for dropping bombs, as, for example, in the airship brought down in the north of

London in the early part of October, 1916.

The German Schütte-Lanz, a well-known type, is an attempt to secure the advantages of a rigid type, without the fragilities of the Zeppelin. The framework is made of fir wood, and contains separate gas compartments. Exceptional strength is claimed for these compartments. A centrifugal pump is employed for distributing the gas. The volume of the airship is 918,000 cubic feet—an extremely large structure, surpassing even some of the largest types of airship. It is believed in authoritative quarters that one of the first airships brought down in flames on British soil was a ship of this type.

The German Gross airship has been described as more or less a reproduction of the Lebauchey type, which is, of course, of French origin. It is built partially on the rigid and partly on the non-rigid system.

The Parseval airship is portable, and therefore a particularly useful type. On account of its subtleness it has been remarkably free from accidents. It is small in size, and is fitted for many purposes for which larger airships would be useless. The dimensions, however, of the

Parseval vary considerably, the smallest being 3,200 cubic metres. (This particular ship was built in the year 1908.) The more recent and larger designs have a far greater capacity.

There are, of course, many other types on similar lines, but we are chiefly concerned in these pages with the purpose and fate of airships of the rigid type, and in our next chapter we shall see how our airmen have fitted themselves for the task of dealing with Zeppelins.

## CHAPTER VIII

### CONTROLLING AN AEROPLANE

IT need scarcely be said that the control of an aeroplane very greatly depends upon the pilot. One pilot will perform marvels with a machine which in the hands of another may produce a very different result. There are, of course, rules which must be observed. But to the skilful pilot an aeroplane may be said to be like a horse under the care of a trained horseman. A light touch will achieve more than the most strenuous efforts of the amateur, and out of the seemingly wayward machine the expert aviator will make a docile and obedient servant.

The pilot has various rudders by which he steers parts of his machine independently of the other parts. If he finds the left-hand side of his machine dipping, he can steer the side up, or *vice versa*. In this way he has at his command the means of correcting any tendency to 'heel over' to



one side or the other, or to 'pitch skyward.' But without a natural tendency on the part of the machine to keep a safe angle, such precautions would, of course, be futile.

It has been said that the bicycle affords a good illustration. 'The rider of a bicycle instinctively balances himself on his machine, but it would be exceedingly difficult for him to do so were it not for the fact that a rolling wheel tends of itself to keep upright.' As regards air pressure, a little thought will show that when a machine is moving along horizontally in the air the upward pressure must be equal to the downward pull of gravity. Consequently, a machine travelling steadily through the air has been likened to a pendulum. 'It is just as if the machine,' writes Mr. Thomas Corbin, author of *Aircraft*, 'were suspended upon a point at the centre of pressure. And just as a pendulum always hangs, when it is steady, with its centre of gravity exactly under the point of support, so the flying machine hangs with its centre of gravity exactly under the centre of pressure.' The designer and user of an aeroplane have, therefore, so to arrange surfaces and weights that when the machine is in the right position of horizontal flight the centre of



gravity and the centre of pressure will be in the same vertical line.

Suppose, for instance, that the machine tips forward and tends to dive downward; the centre of pressure is thrown forward, though of course the centre of gravity remains still. In such a case the natural righting tendencies of the machine come into operation, causing it to steer upward and so right itself. On the other hand, if the machine tries to deflect upward the very opposite happens. The only pose in which the machine is stable is when it is moving horizontally.

As we turn from the horizontal to the vertical, the effective surface of the plane diminishes, but when turning from the vertical towards the horizontal it increases. When the machine tips to the left the effective area of its right hand half diminishes, whilst that of the left hand half increases. Similar action will take place if the machine tips over to the other side, but whichever way it tips the self-righting tendency brings it back. And so we see that an aeroplane is far safer than is thought by many persons. But a great deal, as we have seen, rests with the pilot; in his hands is the general system of control.

One of the simplest methods consists in providing a universally pivoted hand lever and pivoted foot lever. The latter operates the rudder through two crossed cables which connect the rudder tiller with a cross piece on the spindle of the rudder bar. Upon releasing the pressure on the left foot, the machine turns to the left, and acting similarly with the right foot the machine turns to the right.

The general method for controlling the elevators is by cross wires which pass from their tillers to the ends of a fore and aft bar passing through the centre of the universal action of the vertical centred rod. One wire cables to the balancing flaps, or the warping cables are attached to a horizontal crosspiece, whose axis is set transversely in the machine and passes through the same centre of motion of the control rod. In this the method is such that a forward or backward movement of the rods rocks the fore and aft bar and pulls on the elevator cables to make the machine go up or down. A side movement of the control rod rocks the traverse bar and pulls on the warp or flap cables.

Another control system consists in replacing the universally pivoted rod by a simple pivoted rod, the pivoting of which,

fore and aft, controls the elevators, and having a handwheel and drum upon which the warp or flap cable is wound or unwound. The winding in and out of the balancing cables has been likened to the wheel control system of a motor boat or small steamer. By duplicating the cables on single control the safety of the machine is enhanced, and by duplicating the controls both the pilot and the passenger are given power. This duplication is, of course, most useful in the event of the pilot becoming incapacitated from action.

The experienced pilot, in virtue of his keen sense of touch, has an almost infallible guide as to what the air is doing with his machine. His hand is upon his lever, holding the elevator in the desired position, and the slightest increase or decrease in the speed of the air causes an increase or decrease of the lever's pressure against his hand. 'He has his hand on the machine's pulse, and feels instantly any change in its conditions.' In the event of the elevator pulling, he knows that the wind is increasing and that there is a call for reducing the 'up-starring action' of the elevator. If, on the contrary, the wind slackens, his lever gives toward him and is drawn in a little, till

the normal tension is gained. The 'feel' of the lever tells him what to do, and with practice the necessary correcting movements are made by instinct.

We know how well our airmen have learnt their lesson. Many of them have become competent pilots with astonishing rapidity. A writer in the *Daily Chronicle* (October 13, 1916) has told how 'the British Air Service is now a great army, 80 per cent. of whom, before the war, had never even seen an aeroplane, much less been up in one—bank clerks, young merchants, undergrads., doctors, lawyers, journalists, all endowed with two sterling qualities required by the pilot of the air, courage and levelheadedness.' And how has this great miracle been accomplished? August, 1914, found us lamentably short of both personnel and material, but what little there was was of the very best. The already experienced pilots set to work with a will upon the more than generous quantity of raw material that came to hand. Within a few months their influence made itself felt. 'They taught the *quirks*—the airmen's pet name for the novice—in their own simple and undemonstrative manner, that the air is to be respected but never feared, the aeroplane



treated as a being of life and animation, with quaint humours peculiarly its own, and not as a lifeless mass of metal and woodwork.' The usual method of training a new hand is to get him used to the air. The beginner is taken up for several flights as a passenger. In the initial flight the pilot will perform the most daring manœuvres and precipitous turns, watching his passenger closely the whole time for any signs of nervousness or fear. It is a most trying ordeal that first trip up aloft, and the bravest hearts have been known to quail.

'Following the first flight,' says the author of the article from which we have quoted above, 'there are numerous trips in dual-control machines, that is to say, with the ordinary pilot's control-stick and steering-bar duplicated, and both couples working under the same controls. Thus, gradually, the *quirk* becomes used to the handling of the craft and accustomed to the sudden drop of wind, until eventually, without his knowledge, the instructor allows him to fly the machine himself. Sufficient progress made, he is allowed to make flights alone, and when he has learnt to bank left and right, and land the machine in a safe and seemly manner,



permission is given him to attempt the Royal Aero Club's certificate ; for which an altitude flight, a distance flight, and landing on a given spot are the only tests that are necessary. This, let it be said, is but the starting-point of his flying education. Flying fast machines, wireless operating, machine-gun firing, bomb dropping, navigation and map reading are still to be mastered. Only one who has been in the air and seen that queer panorama of jumbled green, grey and blue, stretching away for miles on either hand behind him, can appreciate the difficulties of an air pilot endeavouring to make a true course from a mist-bound earth ; or when one's hands are frozen to the bone, and the ice-cold wind whistles by one's ears, the extreme difficulty of manœuvring the control-stick and working the machine gun at one and the same time.'

As for flying at night, 'when sky and earth are alike indistinguishable,' that is a science needing far more than the average degree of courage. Such flying is only entrusted to experienced and skilful pilots. How few persons know the *full* meaning of the achievements of the heroic airmen who have attacked German airships and caused them to fall flaming to the earth !

## CHAPTER IX

FLIGHT-COMMANDER WILLIAM LEAFE  
ROBINSON, V.C.

FLIGHT-COMMANDER WILLIAM LEAFE ROBINSON, V.C., was the first airman to bring down a German airship on British soil, and he enjoyed the distinction of being the first soldier to win the Victoria Cross in England. The raid during which his heroic act was performed was carried out by thirteen airships in the early part of September, 1916. The principal theatre of operations was the Eastern Counties, and the objectives seem to have been London and certain industrial centres in the Midlands. The new measures taken for the reduction or obscuration of light undoubtedly proved most efficacious, for the raiding squadrons, instead of steering a steady course, as in the raids of the spring and autumn of 1915, groped about in darkness, looking for a safe avenue of approach to their objectives. Three air-

ships only were able to approach the outskirts of London. One of them appeared over the northern district at about 2.15 a.m., where she was at once picked up by searchlights and heavily engaged by anti-aircraft guns and aeroplanes. After a few minutes this airship was seen to burst into flames and to fall rapidly towards the earth.

Not, however, till some hours had elapsed was the name of the hero of the hour made known. Meanwhile official reports were issued, the first simply announcing the raid, and the second stating that one airship had been brought down in flames near London. On Sunday, September 3, an official report stated that after careful inquiries it had been found that casualties and damage caused by the raid were quite disproportionate to the number of airships employed, the casualties being one man and one woman killed, eleven men and two children injured. No casualties occurred in the Metropolitan District, though some houses and outhouses were slightly damaged. Elsewhere the damage was very small, no military damage of any sort being done.

A great number of persons saw the airship fall. One witness relates that he

saw it shortly before two o'clock, and for ten minutes, it seemed to him, it was smothered with shrapnel, held the whole time by a concentration of three or four searchlights. He had watched the bombardment on other visits, but in none of them, he says, did the shells burst in such deadly proximity to their objective. The airship, in his own words, might have been giving her own firework display. He saw the airship make off northwards. Already she was a ship in distress. 'She yawed and dipped—first this end and then that—going, all the time, at a good speed. Then she was lost behind a cloud. A long silence ensued. The sky was full of cloud patches. The searchlights were all shut off. Suddenly the airship was seen far to the northward. She had travelled behind a sheltering cloud. She slipped from its edge, and the searchlights had her at once. It was seen that she was falling. She must have been from 2,000 to 3,000 feet up. She had fallen a little, when suddenly she burst into flames! The light was everywhere. Had your back been to it, or your eyes shut, you must have been sensible of it. The thing fell like the moon falling from heaven, with a long trail of light—only the light was crimson, not



green—and as it fell there broke out one of the most eerie sounds ever heard—hand-clapping and cheering from thousands of people all round, whose waking existence one had never suspected in the dark until that moment. They applauded simultaneously as at a pageant, till the sky over London seemed as full of cheering as it had been full of the rosy strange light only a moment before.’

There are many other interesting and instructive accounts. A special constable, who witnessed the raid, writes: ‘It was at about 11.30 p.m. when I heard the first Zeppelin. I could not, however, see any airship owing to the mist intervening. Several aeroplanes continued to cruise around at great heights with only their little tail lights discernible. People were beginning to return to bed on the assumption that the raid was over, when soon after two o’clock bombs were heard dropping again—this time in the direction of London—together with the noise of heavy anti-aircraft bombardment. We now saw the airship easily just over the north-eastern outskirts of London in the rays of many searchlights. After some minutes of very heavy gunfire she made a graceful sweep and turned tail, going full speed



eastwards for home and safety. But though she must have been about 8,000 feet up at this time the searchlights followed with relentless persistency, while all the time the guns were barking madly after her. Then a strange thing occurred. The airship suddenly disappeared and reappeared again—caught up apparently by new searchlights further along the line of its retreating course. She looked much smaller than before. At about the same time a strange red light appeared in the sky almost directly above the airship and the guns immediately ceased to fire. The searchlights never left the invader for an instant now. The hundreds of thousands of people who were again out of doors and witnessing this new and weird development held their breath. Everybody seemed to feel that something dramatic was about to occur.

‘Suddenly a flame flashed out from one end of the airship, and almost at the same time she began a nose dive towards the earth, the flame growing and spreading throughout the whole length of her immense body. It was a wonderful, unforgettable sight. The flames lit up the sky and land for miles and miles around with a brilliant red hue as the million and half or so cubic feet of hydrogen were being

devoured by the hungry flames. I could read a newspaper with ease in this light, though I was more than ten miles away. The airship took quite two minutes dropping to earth, but during those two minutes mad, deafening cheers rose out of the night from all sides. Hooters from works and from vessels in the Thames and railways shrieked and whistled and screeched, all joining in the general pandemonium of joy. Even from a distance of five miles away I could hear the deep-throated cheers of the Irish Guards in camp there. For a full half-hour the cheering continued, echoing and re-echoing from all sides, and in the intervals of the joyous shouts of half-dressed men, women, and children could be heard the humming of an aeroplane's uncommonly powerful engines. Again the mysterious red light appeared: then a white light and again a red light, and so on alternately, until the multitude realized that the victor of a great air battle was returning, signalling the story of his success as he made for his aerodrome head quarters, guided by friendly searchlights. Then again such cheers rent the air as may not have ever been heard before anywhere on earth in the blackness of a very early September morning.'

A crowd of persons from a radius of almost twenty miles flocked hastily to the scene of the wreckage. One records how 'an engine, salvaged with the two halves of a propeller from the wreckage, lay by the side of a hedge. Men were measuring them with their walking-sticks and women by the length of their umbrellas. Pieces of wood and aluminium had been shot helter-skelter all over the field and were being gathered up as grim yet precious treasures. A cordon, half military, half constabulary, kept the onlookers at a distance of some twenty yards. And all the time the flames were steadily consuming the framework of the terror of the air.'

How the monster met her end was described by one who saw all that happened: 'She was flying at a great height,' he said, 'but the anti-aircraft guns were putting in splendid work. Not once, nor twice, but many times the airship seemed to be hit, until the gondola must have been riddled through and through. She reeled. Then she shook herself like some great angry animal enraged at attack, but not disposed to turn and flee. Probably she couldn't fly away, even at that time. Anyway, she made no attempt. The air.

ship burst into flames in the centre first, then at the ends. She sank lower and lower, and at last, tumbling over with nose pointing downward, she fell to the earth with no bump or thud. The dull splash of an incendiary bomb and the cracking report of what was left of her ammunition were the only noises she made as her dying gasps.

‘When the crowd did talk of the awful thing that lay smouldering in the long damp grass they were emphatic in two directions. Men of our own Flying Corps, who know the perils of the air from experience, paid splendid tribute to the memory of the charred dead who lay doubled up in the attitudes of the final agony. “Whatever they meant to do, whatever they had done, they were brave men,” said one. From others of the spectators came what was, perhaps, not unnatural—satisfaction undisguised.’

People who saw the airship in full flight agreed that she was flying very high—much higher indeed than the airship which previously visited London. From the earth she looked like a small illuminated cigar set thousands of feet above the countryside. Directly she was sighted in the northern districts of London several



large searchlights held her while the guns got to work. There was an incessant gunfire for a few minutes, and then there was silence. The airship had fled north. But in the course of the next few moments the lights picked her up again. Then was seen the mysterious signalling light of our heroic airmen.

The village of Cuffley, made famous by the fall of the airship, is a little village of tiled cottages resting in the curve of a white road which defines the crest of a splendid sweeping hill crowned with poplars and tall pines.

The contour of the village is that of a wide, clearly determined triangle, with the church and the inn marking the base and the cottage of Castle Farm placed at the apex. 'The shadow of the little grey church falls athwart the yard of the inn, by name The Plough; but Castle Farm is divided from it by two smooth, rich meadows.' A footpath crosses these meadows, uniting the farm and the inn.

The burning airship fell into a big field which lies in the direct centre of the triangle. This is a barren field; the very soil is black and unfertile, covered with tall grass, grey and parched. The splintered blades of the airship's propeller



crashed through a hedge, tearing it and breaking it down. 'Such was the damage done,' one writes, 'such was the fine quality of the mercy meted out to the village of Cuffley.'

One of the villagers records: "I was running downstairs at the time the airship was falling. The whole house was lighted up. I saw all of the furniture in the hall, and the table and the carpet. My husband was down there. He hadn't had time to get dressed. He was putting on his clothes down there in the hall. They were all streaked with red, his face and his hands, too. The red light stopped, but it was still light—just a little light.

'I could hear him talking. I was trying to ask him what he was saying, but my tongue wouldn't move in my mouth. I was shaking all over. I thought I was going to fall down the stairs—the steps in our house are very crooked.

"We are lost—we are lost!" I said. But my husband says I said nothing at all. I'm sure I don't know.

"We must get out of here," he said, "It'll be on us in a minute."

'But we couldn't get the front door unlocked. We were trying to break it open, hammering on it. And I was won-

dering all the time if it was going to fall through the roof. I thought it was hours we were there. "What a dreadful way to die," I said. And he said, "There, there, everything's all right."

'Then the red light came back in the sky again—and all of the time we couldn't get the door open. But all at once it came open quite easily.

'We were out in the yard. We saw a flaming mass drop into the field by The Plough. We thought the people there were killed. We began to run. We could see the fire burning. But nobody was hurt—what a wonderful thing! I felt almost happy—but I knew I shouldn't be happy when such an awful thing had happened.

'My husband took me with him into the field. He said I couldn't stand to see those things out there. But I thought that when it's war everybody can stand everything. And I didn't know—maybe, somebody had been hurt. You couldn't tell, you know—somebody might need help.'

Another villager records that the airship just missed The Plough, and fell in a field close by. 'When we got over to the field we could still hear the crack, crack, crack

of the cartridges exploding in the fire. This must have kept up for about twenty minutes. The thing I was thinking was that there wasn't much of a wreck there for an airship—only about twenty-five square yards of it. I had a great fear at the back of my mind that it might be one of our smaller airships, after all. Then we found the propeller. We saw four bodies burning in the wires—they were all black and charred, still burning. There's no doubt about it—not a man in that airship came down alive. There was a lot of burnt wood sticking in the ground everywhere around—everything had stuck in the ground end on. We even saw a broken Thermos flask.'

It is well that these statements of eye-witnesses, which with the passing of time will take on peculiar interest, should be set down in these pages.

In appraising the heroic achievement of Flight-Commander Robinson, V.C., we should bear in mind that night flying presents peculiar difficulties. A contributor to *The Aeroplane*, October 11, 1916, writes: 'The actual bodily peril of flying at night may not be as great as is the peril of crossing the German lines in broad daylight, but the nerve strain

must be greater. The aviator over the German side of the lines has generally something on hand to keep him from brooding, such as a battle with a German machine or the dodging of good shooting, and he generally has a passenger by way of company. The night pilot, on the other hand, flies entirely alone. He flaps around for hours on end, with nothing to do but think and keep a look-out for other aircraft. And nothing is so great a strain on the nerves as unlimited time for thinking, a pastime for which the pilot has considerable leisure, now that all respectable aeroplanes are inherently stable.

‘If there is any mist about, there is the constant danger of collision with other machines, for in the dark there is not even that chance of dodging which a pilot gets from the few seconds during which he can see another aeroplane approaching in a cloud which is illuminated by daylight. Over and above it all is the constant imminence of the landing problem, with the prospect of being smashed up, and possibly burnt to death, if the pilot makes a mistake, or fortune is against him.’

Flight-Commander Robinson showed remarkable skill as well as great valour—



a hero in the good British sense of the word. On September 3 he had the honour of being foremost at the investiture at Windsor Castle, when the King decorated him with the Victoria Cross.

The first of the money rewards received from grateful admirers of his valour was £500 from Mr. L. A. Oldfield. Mr. William Bow also sent the £500 which he offered to the first pilot to bring down an enemy airship on British soil. A further £2,000 came from Col. Joseph Cowen, and public recognition was made by Sir Charles Cheers Wakefield, Lord Mayor of London. All united in paying a tribute to the young aviator's heroic deed.

We have seen that he bore his honours with fine spirit. He claimed for himself no peculiar gifts of gallantry or skill. It was, he said, merely his good fortune. There were many, he said, waiting for the opportunity to do what he had done. Later the opportunity came, and we know to our just pride that amongst our airmen there are *many* heroes.



## CHAPTER X

LIEUTENANT FREDERICK SOWREY, D.S.O.,  
AND LIEUTENANT ALFRED BRANDON,  
M.C., D.S.O.

THE next raid over England by German airships took place on the night of September 25, 1916. Twelve airships took part, but only ten returned. One was brought down in flames not far from London, the crew being killed; the second came down near the coast, and the crew were made prisoners. Both of the airships were of the latest and largest type.

An official report issued by Lord French stated that probably not more than twelve airships participated in the raid. Police reports from the provinces indicated that the damage done by the raiding airships was slight. At one town in the East Midlands, however, a number of bombs were dropped, and two persons were killed and eleven injured. Some damage was caused at a railway station, and about a

dozen houses and shops were wrecked or damaged, and a chapel and a storehouse were set on fire. With this exception no other casualties were reported outside the Metropolitan area, and although a large number of bombs were dropped promiscuously over the districts visited by the airships the material damage was insignificant. A great number of bombs fell in the sea or in open places. In the Metropolitan area seventeen men, eight women, and three children were killed, forty-five men, thirty-seven women and seventeen children being injured. A considerable number of small dwelling-houses and shops were demolished or damaged, and a number of fires were caused. Two factories sustained injury. Some empty railway trucks were destroyed, and the permanent way was slightly damaged in two places. No reports were received of any *military* damage.

The first definite information that German airships were approaching London was received shortly before eleven o'clock. No sooner was a Zeppelin located than the guns opened fire with apparent accuracy, considering the difficulty of estimating the range. Some of the shells burst very close to the raider, and once it appeared to

have been hit. Anyway, after that it lost no time in seeking a higher altitude, where it was lost to sight. Some minutes elapsed before the weird humming of Zeppelin engines was heard again.

Two Zeppelins were now seen making their way in a north-easterly direction. An anti-aircraft gun, which had been following or anticipating their movements, opened fire. The gun was fired as fast as it could be reloaded, and one or two others, at a little distance off, joined in. But owing, perhaps, to their power of emitting dense smoke clouds behind which to escape, the Zeppelins managed to elude their watchers. But once more, after a brief interval, the sounds of the engines could be heard above, and the airships could occasionally be discerned at a great height, as they were revealed by the searchlights making their way back to the coast at what seemed to be the utmost speed of which they were capable. Whether the Zeppelin that was first seen was one of the two which were hit afterwards is not known.

The guns for the defence of London now opened again sharply for a few minutes, and as suddenly relapsed into silence. Faint searchlights flickered here and there,

and were withdrawn one or two at a time, when it seemed there was nothing left aloft to search for. But the fleeing Zeppelins were not having it all their own way. Their flight was punctuated by gunfire, which became fainter the farther they went, and they were also pursued by heroic airmen. Then miles away in the distance, and not many degrees above the horizon, the sky began to glow red. 'Then there appeared the nucleus of a brilliant comet falling headlong.' It was visible only for a few seconds, but the spectators raised loud cheers, for they knew that another raiding Zeppelin had met with the fate it deserved so richly, and that another proof had been given to the Germans that Zeppelin raids could not be made with impunity.

Describing the fall in flames of the raider, a Metropolitan special constable writes: 'I was on duty on Monday, September 3, when the Zeppelin was brought down at Cuffley, and again during the raid in the early hours of yesterday morning (September 26). I had a particularly clear, though distant, view of both events, which, though they resembled one another in some respects, had at least one important point of difference. When the Cuffley



airship took fire she sailed helpless across the sky, a blazing tomb drifting for miles through the air at an angle which brought her steadily nearer to the ground. That was the first stage. Then her nose dipped, the fire enveloped her completely, and she fell almost perpendicularly; that was the last stage. But this time the end came more swiftly. I watched one of the Zeppelins under fire for some minutes; in the searchlight beams she looked like an incandescent bar of white-hot steel. Then she staggered, and swung to and fro in the air for just a perceptible moment of time. That, no doubt, was the instant when the damage was done, and the huge craft became unmanageable. Then, without drifting at all from her approximate place in the sky, without any other preliminary, she fell like a stone—first horizontally, then in a position which rapidly became almost perpendicular she went down, a mass of flame. . . . From the place where I was I could see and hear some of the rejoicings which greeted the victorious end of this latest battle in the air. Policemen, special constables, firemen, and ambulance men had their eyes turned on the combat in the eastern sky, and cheered and cheered again. From



houses of all sorts men, women and children ran out in their night-clothes to listen to the bombardment, and to stare at the vast glow which for a few seconds lit up darker London.'

Another special constable writes: 'The sky was so clear that the action was apparently fought without the aid of searchlights. The gunfire was continuous, deep and heavy. It in fact became so continuous that sense of excitement faded away, and the people in the streets chatted about home affairs without very much heed of what was going on to the east. But air engagements have the quality of speed. Suddenly we were in the great first act. A cry, a shout, a rush, and all eyes were fixed on the eastern sky. An airship was seen for one moment 'riding at anchor,' as it were, on level keel, and then it glowed and slowly turned and came quietly down the eastern side a cigar-shaped, red, incandescent mass. The fall seemed much slower than that of September 3, but the distance was much greater, and refraction of the horizon distorted the image. The fall seemed appallingly slow, and towards the end, as it reached the skyline, the ruined airship hung and glowed for many seconds. Then

the great shout broke out, the cheering ran across London and must have been heard on the outer hills and down the expectant Thames.' Then followed the eager rush of thousands of persons toward the scene.

A correspondent of the *Times* has told how the wreckage lay athwart a hedge with its lattice framework impaled on an oak-tree, looking like the skeleton of some huge primaeval monster. 'She had not fallen like the ship which fell at Cuffley Wood. That one crumpled and telescoped until it occupied a space little more than 30 yards square. This lay with her nose crumpled and bent out of shape, but the framework of girders and lattice was strong enough to hold together. All this twisted mass of metal fell its length on the ground. As she lay it did not seem that the fabric was burnt off the gaunt ribs until one noticed pieces of molten aluminium and brass in the débris.

'One realized the cost of such a craft looking even at the wreck. Lying on the ground was a red leather cushion. This covered the seat of the engineman, and the ghastly evidences still to be seen showed that he died at his post. One at least of the petrol tanks had burst in half,

and the heat of the burning spirit had melted the broken edges until they looked like some fine fretted lace. The airship was built of aluminium girders, and some of the parts were almost massive, although, of course, comparatively light. There were the remains of an air mattress and a blanket, perhaps the bed for one of the night shift when off duty.

‘Curious evidences of the crew’s breakfast still remained. There were slices of bacon and hunks of brown greasy Kriegsbrod with delicately sliced potatoes. Even with the subsequent unanticipated cooking the breakfast was not done, so presumably the crew intended to have their meal when they got clear of the coast.

‘One body was found far out in the field. This was the body of the commander, for although his uniform was burned a little it was still recognizable, and the badges were plain to see. He must have thrown himself over before the ship took her headlong plunge. The other bodies were all dressed in warm clothing, with thick felt boots. Several of the bodies would have been easily recognizable to any one that had known the men in life, but for the most part they were badly burned. A working party of

troops was put on to clear away the wreckage, and it was thought that there were other bodies still under the piled-up débris.'

The second raider came down in Essex. Her propeller had been hit, presumably by gunfire, and with the ship unmanageable and the danger of drifting out to sea, the commander was compelled to make a hasty descent.

The special constable who was the first on the scene has given the following account: 'I was on duty near where the Zeppelin fell. I had seen something about 300 yards away, and I was looking about expecting some adventure, when a batch of Germans appeared in the roadway.

'I turned my torchlight upon the leading man—the commander—who at once said:

““ Can you please tell us the way to——? ”

'I said, " Oh, yes; just come with me." I walked with the commander, the rest of the crew following, till I saw several other special constables on duty.

'The Germans jabbered mostly in their own language as we walked along, but several could speak quite good English.

'I asked them how they had managed to land safely.



“ “ Were you hit ? ” I asked. One grudgingly said something like “ Yah.” The commander was less talkative about this, though.

‘ By this time we were approaching my colleagues of the Special Constabulary, and I told them what had happened.

‘ Meanwhile I, of course, told the commander what was really unnecessary under the circumstances—that he was my prisoner.

‘ He asked to be brought over to the military. Accompanied by the specials, the crew were handed over to the military.

‘ They were taken in Red Cross motor-cars to the detention barracks.’

A labourer near whose cottage the Zeppelin fell, when interviewed by the *Daily Mirror*, said that at about half-past one he was roused by the loud drone of a Zeppelin engine—a noise to which residents of this part of the North-east coast have now become accustomed.

He got out of bed and saw the huge bulk of an airship close overhead.

The vessel passed away, but then turned and soon descended in a field near the back of his cottage. The crew got out ; and then followed an explosion.

‘ It didn’t hurt any of us, but it smashed



the front windows of my house and those of my neighbours,' said the man.

'I found afterwards that all the hair was singed off the back of my dog, which was in a kennel outside.

'Then all the crew came to my cottage and started knocking at the door. I never answered, and I heard the commander shouting. He spoke English, and said something about the house.'

Asked if the German said 'Kamerad,' the labourer replied, 'I don't know what else he said, but I put my wife and three children in a back room and made myself scarce, too.'

The end of the airship dropped across the road which is by the cottage.

When the Zeppelin came down it was to all appearances intact, though suffering fatally from engine trouble. It had a big bulge upwards and downwards at the middle. Its full shape, however, was still well outlined, though twisted in places. Its engines had dug well into the earth, and a long, thin line indicated it had trailed along the ground for some hundreds of yards before coming to rest outside the cottage.

It is now known that our heroic airmen dealt the death-blows to the raiders. An

inhabitant of a South London suburb relates that when our searchlights had spotted the enemy, it was realized by the diminutive appearance of the airship that it was far higher than any yet seen over the outskirts of London. It was travelling quickly, for a time due north, then north-east. Our airmen, hot in pursuit, were seen to be making splendid progress. Not till the 5th of October were the names of the heroic airmen made public. On the day named the following official announcement was made:—

‘The King has been graciously pleased to appoint the undermentioned officers Companions of the Distinguished Service Order in recognition of their gallantry and distinguished service in connexion with the successful attack on enemy airships:

‘Sec.-Lieut. Frederick Sowrey, Royal Fusiliers, attached R.F.C.

‘Sec.-Lieut. Alfred De Bath Brandon, M.C., R.F.C. Special Reserve.’

The valour and skill of the aviators was acclaimed on all sides. Lieut. Sowrey, it may be said, is one of three flying brothers, sons of Mr. John Sowrey, Deputy Chief Inspector of Inland Revenue, of Yeoveney Lodge, Staines. Born at Gloucester, he was educated at home until

he was thirteen, when he won an open scholarship at King's College School, Wimbledon. Gaining two leaving scholarships, tenable at a university, he went to King's College, where he took the intermediate B.Sc. Degree. He was finishing his graduate course when the war broke out. He at once volunteered for service, and, joining the infantry, went out early to the Western front. Wounded at Loos, he was invalided home, remaining in hospital about three months. On leaving hospital he joined the Flying Corps, for 'anything with a motor connected with it had always had a great attraction for him.' He had Lieut. Robinson, V.C., as his fellow-learner. He was taking a course for the Indian Civil Service when the war called him into the fighting service.

Lieutenant Brandon is the young New Zealander who in April of the year 1915 assisted in bringing down the Zeppelin L15 in the Thames Estuary. An advertisement of the Hall Flying School at Hendon brought him to England. He answered the advertisement, and was immediately accepted as a pupil. He gained his aeroplane ticket seven weeks after joining the school. Previous to the war he was at Trinity College, Cambridge.

The battle fought by the airmen was of a thrilling nature. It is recorded that a 'ding-dong' fight ensued, in which Lieut. Sowrey and Lieut. Brandon manœuvred for position. Lieut. Sowrey had the best of luck, and quickly seized his opportunity of emulating the feat of Lieut. Robinson. Making splendid use of his machine gun, he sent a few well-directed shots into the Zeppelin. Instantly the airship began to turn and twist, and finally crashed to earth a blazing mass. Meanwhile Lieut. Brandon stood by in case of emergency, and later attacked a second raider, which was compelled to surrender.



## CHAPTER XI

### THE CAPTIVE ZEPPELIN

THE Zeppelin which came down in the manner described in the foregoing chapter was on view to a party of London Press Representatives on October 8, 1916. The *Times* representative recalled the fact that the airship lost one of her starboard propellers some while before falling. Although parts of the structure of the airship were crumpled up, the main outlines could be easily recognized. The framework or skeleton was composed of a series of longitudinal lattice-work girders running from end to end and connected at intervals by circular lattice-work ties, the whole structure being bound together and stiffened by means of a system of wires provided with arrangements which enabled them to be tightened up. The material used was an alloy of aluminium.

At the largest point the framework had a diameter of 72 feet, and was of stream-



like form, the bow being sensibly blunter than the stern, which, indeed, tapered off to a sharp point. The length of the vessel appeared to have been 650 feet or 680 feet, and the weight complete, with engines, fuel, guns, and ammunition, was calculated at 50 tons. The hydrogen capacity was 2,000,000 cubic feet, and there were 24 ballonets extending the whole length of the ship. Of the envelope only one or two fragments were to be seen, the rest having been burnt. The airship, which was numbered L33, was of quite recent construction, having been built last July, and its cost is estimated by the Admiralty authorities at about a quarter of a million. How long was required for building it could not be told from an inspection of the remains, but the enormous amount of detail was evident enough. To enable the crew, which consisted of twenty-two men, to move from one part of the ship to another, a cat-walk ran along the keel, enclosed in an arched passage. It consisted of a narrow footway, nine inches in width and made of wood—one of the very few examples of wood construction used—and provision for ventilation was made in the shape of shafts rising to the top of the ship.

In all there were four gondolas—one forward, two amidships, and one aft. The first of these constituted the navigating bridge. It was divided into three parts. The first was set apart for the commander, and in it were concentrated the controls of the horizontal and vertical rudders at the stern, the engine-room telegraphs, and the switches for the electrical release of the bombs. These last, of which sixty were carried, were actually arranged amidships, and the sliding door which was opened to allow them to fall could still be seen moving freely on its bearings.

Behind the commander's room in the forward gondola was a cabin for the wireless operator, measuring perhaps 6 feet by 4 feet, and behind that again an engine-room containing a 240 h.-p. Maybach Mercèdes engine having six vertical cylinders. Behind the engine was a clutch, a brake, and a reducing gear, through which the power was transmitted to a propeller shaft; a generator for the wireless installation was placed in front. One similar engine was carried in each of the gondolas amidships, and three in the aft gondola, all the engines having wireless generators attached. There were thus six

engines, with an aggregate power of 1,440 h.-p., and six propellers. Of the latter, three were worked from the aft gondola, one being placed in the centre at a point distant from the tail about one-fifth of the length of the ship, and the other two one on each side; two were driven from the side gondolas amidships, and the sixth was in connexion with the forward gondola. To reduce air-resistance a stream-line form was given to the propeller stays by the aid of a thin two or three-ply wooden casing. The amount of petrol carried was 2,000 gallons, and the speed is supposed to have been about sixty miles an hour in a still atmosphere. The armament, apart from the bombs, consisted of nine quick-firing guns. Of these, two larger than the others were mounted on the roof, two were in the forward gondola, one each in the amidships gondolas, two in the aft gondola, and one in the tail. The lightness of the construction was shown by the fact that the huge tail still containing the remains of the gun platform could easily be rolled over.

In addition to the particulars given there were other interesting features. It may be noted, for instance, that practically

everything, except the engines and the guns, was made of aluminium alloy. The only woodwork was the narrow platform, known as the 'cat-walk,' which ran along the keel and connected the gondolas. It was closed in with fibre. There was a little wood also in the ventilators, which were found intact. The wood was covered with Manchester cotton, which looked like common sheeting, but was really of very fine texture. The pressure of a button in the captain's cabin opened the sliding grille of framework, and an electrical device permitted each bomb to be dropped separately, either slowly or rapidly.



## CHAPTER XII

LIEUTENANT W. K. TEMPEST, D.S.O.

CONCERNING the raid over England by hostile airships which took place on the night of October 2, 1916, the official report issued by Lord French was to the effect that ten hostile airships crossed the East Coast between nine p.m. and midnight. One airship approached the north of London about ten p.m., but was driven off by gunfire and pursued by aeroplanes. She attempted to return from the north-west, but was attacked by guns and aeroplanes and brought to earth in flames in the neighbourhood of Potter's Bar shortly before midnight.

An eye-witness of the fall of the airship writes<sup>1</sup>: 'I live in the country just outside the fringe of the great searchlights which guard the London area. From the verandah of the house one can obtain a wonderful view of any "pyrotechnic"'

<sup>1</sup> *The Times*, Oct. 3, 1916.



display within a distance of twenty odd miles. The household is most familiar with Zeppelins, aeroplanes, bombs, guns, and searchlights. We have seen all the raids, we have seen three Zeppelins destroyed, and bombs have fallen all round us; but happily our little district has so far escaped damage. So accustomed are we to all these aerial affairs that we seem to know instinctively when a raid is due. And it was so on Sunday. The sky at eight o'clock looked very ominous. Some time later came the warning to the special constables, and at the same time the sky in our immediate neighbourhood was lit up by powerful rays from searchlights. I rightly surmised that the Zeppelin would attempt to reach London from the north. By now (I live close to the railway) the searchlights were sweeping the cloudless sky, and the air was quite still. About half-past ten we heard the beat of the Zeppelin engines; she was due north of the house. Then she sailed towards the east. The night was so clear that she was seen quite easily. With the aid of a night glass she appeared about a yard long.

‘By the sound of her engines we could tell she was circling the fringe of light, for she gradually altered her course from

east to south-east. Then we heard her wheel round to the left. She made a circle of some miles, and finally went south-east again, when we heard the engines no more. Meanwhile my children, two girls, aged eight and eleven, insisted on dressing: they wanted to "see the show." With their mother they made themselves comfortable on the verandah. About half-past eleven, away to the south-east, we saw flashes from falling bombs, and the bursting of shrapnel, with the boom of heavy guns firing. The children were getting very interested. Suddenly a score of searchlights seemed to concentrate at one point, and quite distinctly we saw the Zeppelin "held." Shrapnel was bursting all around her. Then the guns ceased, and we could see no Zeppelin. We thought she had managed to slip away. But our airmen were on her track, and soon there appeared a yellow light; it became larger and larger, until we realized that it was the Zeppelin alight. From yellow the flames changed to ruby; they seemed to spread from the centre to each end of the airship. When she was aglow from end to end she tilted, gradually became perpendicular, and fell slowly to earth. The flames lit up the country for miles; the

framework of the machine was plainly visible. You could see smaller portions of her ribs, loosened by the heat, falling like small sparks. She fell five miles from my house, but I thought I heard the whole of England cheering.'

Another witness, who watched the coming of the raider from the north-east, has given the following account: 'What struck me was the evident uncertainty of the crew as to where they were, or where they wanted to go. They stopped; they turned this way and that; they manœuvred in every direction in order to avoid the searchlights which were darting about all round them. But it was all to no purpose. The way in which the great beams of light followed the airship in all its desperate efforts to escape was really wonderful. A few moments passed, and the guns began to shell the Zeppelin. The shells burst all round—some of them so near that it seemed as though hits had been scored. Then, in a moment, a bright light burst out in the body of the airship, and in another moment she was a mass of flame from end to end. She seemed to turn over on her side, and then gradually sink to earth. While coming down, she broke into halves, and during the descent

she threw off huge bunches of some flaming material. From the great height at which she had been floating it was impossible to tell where she would come down, and for some moments the onlookers did not know but that she might fall upon them. But the blazing remains plunged at length behind some trees, and that is the last we saw of her.'

The nearest view of this fourth airship débacle on British soil was enjoyed by a farmer at Potters Bar, on whose farm the Zeppelin came down. He has given the following interesting account: 'We were awakened by the sound of the guns, and we got up. I went into my garden, and from where I stood the Zeppelin seemed to be right overhead. Thinking that she might be preparing to drop bombs, I brought my wife and two children into the garden away from the house. We had not been watching it many moments before the airship suddenly burst into flame. It was then apparently right over my house, and looked as though it would fall right across the roof. It was burning furiously, and blazing masses were flying away from it during its descent. I shouted to my wife to be prepared to run out into the road in case it should fall upon the house.



But as it got lower and lower—it did not seem to fall very quickly—I saw it would fall into the fields behind my farm buildings. I ran through the stable yard and down a by lane leading to some grass fields. In the corner of one of these were some large haystacks, and I was afraid that these might be set on fire. When I reached the spot I found they were all right; but about 200 yards away the remains of the Zeppelin lay blazing furiously. I dared not go very near to it for two reasons: one was that the heat was very great, and another was that ammunition of some kind was exploding at intervals. I afterwards discovered that this was machine-gun ammunition, a large quantity of which seems to have been carried, for some was found in boxes unexploded. I only saw one bomb drop before the Zeppelin came down, but others were found among the *débris*. The Zeppelin had broken into two pieces. The larger half was hanging over a big oak tree, which stood in the middle of the field. I saw some dead bodies lying about. One appeared to be that of an officer, for I could see gold stripes on the arm of his coat. Another was wearing the Iron Cross. Some of them had wrapped



themselves up in blankets, evidently trying to avoid the flames. I had a herd of valuable dairy cows in the field, and these were very much alarmed at the blazing Zeppelin. They galloped round the field in terror, and one of them seemed determined to rush into the burning mass. I had some difficulty in keeping her away, and I was very glad when the fire brigade came on the scene and began to throw water on the ruins.'

There were many interesting incidents connected with the fall of this airship. An Iron Cross was picked up close by. The commander of the airship was wearing a wrist watch which had stopped at 1.20 (German time). One member of the crew, whose body was recovered, appeared to be a boy of sixteen or seventeen years of age. The heat of the wreckage was so great that full search was impossible till over twelve hours had elapsed after the fall. No less than thirty-nine bombs were dropped over one small area to the north of London. Most of the bombs fell, however, in fields and meadows.

The airship was thwarted in its evil designs by our heroic airmen. In the course of a few days it was officially announced that Second-Lieutenant Wulstan

Joseph Tempest, General List and Royal Flying Corps, had been appointed a Companion of the D.S.O., in recognition of conspicuous gallantry and devotion to duty in connexion with the destruction of an enemy airship.

On the fateful day Lieutenant Tempest had finished his regular duties, and was spending the evening with friends at a dinner party. Before the meal was over a call reached him, and a few minutes later he was back at his aerodrome.

He made a speedy start, with the idea of intercepting the airship, which was reported to be approaching. He had soon reached a height of upwards of 10,000 feet. He manœuvred around unwearying in a protracted vigil. At the end of two hours a searchlight picked out the airship and persistently stuck to it, despite its efforts to get beyond the focus of the beam. Soon other searchlights added to the volume of illumination, and anti-aircraft guns began to pepper at the airship.

In a moment a great sheet of fire swept along the airship, and it began to fall at a speed increasing as the law of gravitation came into play. Immediately after the Zeppelin caught fire Lieut. Tempest travelled the complete length of the air-

ship from stem to stern, being parallel with it all the time. Then he began to descend. But the falling airship hampered his movements very considerably. Once or twice he narrowly escaped collision with the flaming mass, and in order to avoid this he was compelled to resort to nose-diving.

The work had been done under tremendous strain, but Lieut. Tempest fortunately escaped injury of any kind. The spot where he landed was miles away from the place where he had first taken the air. Without troubling to examine the burning airship, which had fallen not far away, Lieut. Tempest was driven back to his home station in a side-car, arriving about 2.30 a.m. Here he received a tremendous welcome from his brother-officers as the third man of the same flight who had brought down a Zeppelin.

Lieutenant Tempest was born on January 22, 1890. He was educated at Stonyhurst, and afterwards entered the Mercantile Marine and received training on the *Worcester*. He learned to fly at one of the military schools, taking his pilot's certificate on May 22 of the year of his heroic deed. He had previously been attached to the King's Own Yorkshire

Light Infantry, and was invalided home after fighting in France last year at Ypres. For nearly twenty-four hours he was buried in a dug-out, and as a consequence he is still liable to attacks from rheumatic gout. The experience also left him a little lame, but he still retains great skill and courage, and certainly takes high rank amongst our heroic aviators.

## CHAPTER XIII

### LIEUTENANT WARNEFORD, V.C.

To Lieutenant Warneford, V.C., falls the distinction of being one of the first airmen to destroy a Zeppelin. At the time of his heroic deed he was on patrol duty in Belgium, and, it seems, was under orders to await the return of raiding airships from England. After a long and trying vigil he sighted a Zeppelin, and made straight for a position above the giant structure.

The attack, we must remember, was made in the year previous to the successful exploits dealt with in other chapters. At the time certain improvements in guns and cartridges had not come into use. Lieutenant Warneford's only hope of completely destroying the airship was to drop a bomb on it from above, and this he did with remarkable skill and courage.

On gaining the desired position, he dropped a bomb with such effect that





Lieutenant Warneford, V.C.



an explosion immediately followed. His bravery will be fully appreciated when we recall the fact that so violent was the explosion that his machine was turned completely over, compelling him to 'loop-the-loop.' This he did with coolness and skill, and although under great difficulties he succeeded in bringing about a safe landing. Unfortunately he was compelled, owing to engine trouble, to land on territory occupied by the Germans. Good fortune, however, favoured him. He managed, before the appearance on the scene of enemy troops, to restart the motor and again take to the air. It is generally thought that he was assisted by Belgians, but this does not appear to be established. It is, in any circumstances, sufficient to know that the heroic young aviator managed to escape and return safely to his base, there to receive the enthusiastic congratulations of his comrades.

The stricken airship unfortunately fell upon a monastery, doing much damage and killing a number of the inmates. It was a Zeppelin of notable type, carrying an exceptionally large crew, including some of Germany's most efficient engineers.

The news of the destruction of the

airship was communicated almost immediately to England, causing keen interest and delight. Lieutenant Warneford became the hero of the hour. The King telegraphed the honour of the Victoria Cross, and the heroic young pilot thus came into the distinction of being the first airman to win the coveted decoration. England and France united in honouring him, and hopes were widely expressed that fresh deeds of valour would be performed in coming days.

But Lieutenant Warneford tasted earthly fame for only a few brief hours. Shortly after his heroic deed, whilst flying with an American journalist as passenger, his machine suddenly swerved, and in some way never fully explained, control was lost, and the machine dashed to earth, killing both the pilot and passenger.

Deep regret was expressed by every friend of the Allies. Much hope had been centred in the courageous young pilot, and the end had come with terrible suddenness. People could not understand. But above all there shone brightly, and still shines, the deed of that *one glorious hour*, when self was forgotten and only duty called.

The name and fame of Lieutenant

Warneford will surely live in the annals of aviation—a fearless spirit, quick and strong to act, tasting for a brief while of conquest and fame, and then meeting, all unexpected, a sudden and untimely end. ‘Fame,’ it is written, ‘may fade, but not the great deeds that bring true fame; their influence lasts through all time.’ Lieutenant Warneford’s heroic act is not dead. His example has inspired and will continue to inspire, and to him we owe in no small measure many of the more recent deeds of our heroic airmen.



## CHAPTER XIV

### THE NEW ARM IN WARFARE

WE shall, no doubt, have occasion to return later to the heroic achievements of our airmen in destroying enemy raiders. Meanwhile, our attention is claimed by a subject of great interest and importance, namely, the part played by aircraft on the various battle fronts of the great war. It was clear some while before the outbreak of hostilities that the aeroplane was destined to play a prominent part. Mr. Sydney F. Walker, R.N., M.I.E.E., remarks, in a useful little volume on aviation, published before the war, that the first important work to which the aeroplane has been put is that of scouting. 'When armies are manœuvring in the field, it is the great object of each general to find out what his opponent is doing, exactly where his forces are, where each particular arm is weak, and where, above all things, he is open to attack. On

the other hand, each general makes the greatest efforts to prevent his opponents from finding out all about himself. The art of hiding men, and even of artillery and of horses, has been brought to such success that the non-military observer might be in the midst of an army of 30,000 or 40,000 men and be perfectly ignorant of their presence. Every inequality in the ground, every natural object, such as a tree, a mound, a house, &c., is made use of for the purpose of concealing the presence of men, horses, and accessories. It will be evident that with an aeroplane flying at anywhere up to eighty miles an hour, and that has been exceeded at the time of writing, and viewing the surface of the ground from above—provided the pilots, or passengers accompanying them, are trained to observe the ground and the bodies of men on the ground from above—practically any disposition of the enemy could be discovered.'

We are now able to judge by results and appreciate the work done. A point of primary importance in active warfare, as we have seen, is the use of the aeroplane for reconnaissance work. Other duties, and there are many, are set forth with admirable clearness by Mr. W. E. Dommett

in his little work, *Aeroplanes and Airships*. The book was written at the early part of the war, and on that account is particularly instructive at this point ; for it enables us to trace the progress made and the victories won by our airmen. ' Reconnaissance work for the purpose of co-operation with artillery,' Mr. Dommett writes, ' forms the most important function next to scouting. An aerial observer is sent out to determine the position of hostile batteries whose existence may or may not be known by its fire, to determine the strength of the batteries, and how the units composing them are grouped. In addition it is the duty of the observer to look out for troops, stores, or other matters which could and should be subjected to the fire of one's own batteries. He should supply as far as possible details as to range and elevation necessary for clearing intervening high ground. In addition the observer can report as to the effect of his own side's artillery, and the manner in which it is failing or succeeding in its object.

' The value of this form of observation is beyond calculation, in view of the fact that the artillery have not to waste time and ammunition in getting the target.

Moreover, the time during which the opposing batteries or forces can do damage is correspondingly reduced. Naturally, much depends upon the accuracy of an observer's report as to its value, and in this respect it appears that the allied forces are superior to their opponents, and it would seem that this superiority is due not so much to the superiority in the observer's machine, but to the better self-reliance, intelligence, and powers of initiative possessed by the men themselves. Observation work, it may be said, is generally accompanied by some offensive action on the part of the pilot or accompanying observer.'

Observation in naval warfare is of course also of great importance. In the work of detecting submarines, for instance, aeroplanes have proved of great value, for it is possible to detect submerged objects with greater ease from considerable heights than from the water surface. Writing to the *Matin*, a correspondent stated in the early part of the war that an aviator flying several hundreds of feet above the sea off Cape Helles, saw a black spot in the water beneath him. Circling round, to enable him to observe it more closely, he at last made out the form of a German submarine,



under water, moving towards a British transport, which was heavily laden with troops and munitions. Immediately the aviator flashed a wireless signal to the transport, and then, swooping down to a few feet of the surface of the water he dropped two bombs. These did no damage to the submarine, but taking warning she sank to greater depths. When the enemy thought enough time had passed he raised his periscope above the surface, but the aeroplane was still circling close at hand and once more a couple of bombs fell close alongside the boat. Then the submarine finally disappeared. Many incidents of a similar nature have been recorded.

It is, moreover, sometimes necessary to find out the position of our own submarines in such a case as when a submarine has disappeared and not returned to its base. Before the war, when one of our A Class boats sank off the Cornish coast, whilst out from Devonport for exercise, an aeroplane was successfully employed for finding its whereabouts. The boats in company with the lost boat laid buoys to indicate the position, but these had become shifted by heavy seas, and had become useless for the purpose.

Observation work is frequently accom-



panied by direct offensive action; but the work is sometimes done purely with the view to the offence. For example, as early as September 23, 1914, naval air-men, namely, Squadron-Commander E. F. Briggs, Flight-Commander J. T. Babington, and Flight-Commander S. V. Lippe, carried out a raid over a mountainous route of 120 miles upon the Zeppelin sheds at Dusseldorf. And at a later date a similar raid was made on the sheds near Lake Constance.

In the early part of the war the Paris correspondent of the *Times* wrote as follows: 'A feature of the operations along the front is the active use by the French of their air service, and the many indications given of the progress which has been accomplished in this branch of the service since the outbreak of the war. Realizing that for fighting purposes the chief mission of the aeroplane is to act like a gun of immense range, and that bombardment requires swarms of aeroplanes and not an isolated machine, the French have equipped and organized a number of air squadrons with the object of disturbing and destroying the enemy's communications, either during or on the eve of military developments, so as to impede the arrival

of men and shells from the reserve points during the progress of operations.

‘For this purpose the squadrons are composed of three different types of machines, the names of which indicate the special duties of each type. These squadrons, in spite of the boisterous weather which has prevailed throughout the month, have raided no less than ten important German railway centres in the area of operations, throwing over 400 bombs in their flight, while the chaser planes engaged any protecting enemy aircraft that tried to interfere with the operations.

‘A glance at a map will show how effectively the air services are able to act as an extension of artillery in upsetting the enemy’s transport. Thus Challerange, an important junction on the Vouziers—St. Menehould and Vouziers—Apremont Railways, whence are served the requirements of the army operating in the west of the Argonne; Arnaville and Bayonville, to the south-west of Metz; Vigneuvelles les Hattonchattel, the railway centre for the south-eastern armies operating against Verdun; Autruy, to the north of the Argonne; and Conflans-en-Jarisy, on the Verdun—Metz railway, have been regu-

larly bombarded by aerial squadrons, which in some cases have numbered thirty-five air machines.'

In this connexion it is interesting to recall an extract from an official communiqué that was issued early in the war: July 20—'Thirty-one aviators yesterday bombarded the railway station of Conflans, an important junction. Three shells of 155 mm. and four of 90 mm. were observed to have been neatly dropped on the station. The engine shed was struck by a shell of 155 mm. Three aviatiks were put to flight by our pursuing aeroplanes, which accompanied the squadron. One aviatik was compelled to land rapidly.'

In the place of an enemy camp or railway junction the attack is made by the Naval Air Service on the submarine base or the dockyard. On many occasions naval airmen have bombarded German submarines in Ghent harbour. In the raid on Cuxhaven, seven seaplanes were conveyed to the vicinity of Heligoland and thence flew over Cuxhaven and dropped bombs on the docks.

A report issued at a comparatively early date of the war stated: 'Quite one of the features of the campaign, on our side, has been the success attained by the Royal

Flying Corps. In regard to the collection of information it is impossible either to award too much praise to our aviators for the way they have carried out their duties, or to over-estimate the value of the intelligence collected, more especially during the recent advance. In due course certain examples of what has been effected may be specified, and the far-reaching nature of the results more fully explained, but that time has not yet arrived. That the services of our Flying Corps, which has really been on trial, are fully appreciated by our Allies is shown by the following message from the Commander-in-Chief of the French armies, received on the night of September 9 by Field-Marshal Sir John French :—

*“Please express most particularly to Marshal French my thanks for services rendered on every day by the English Flying Corps. The precision, exactitude, and regularity of the news brought in by its members are evidence of their perfect organization, and also of the perfect training of pilots and observers.”*

## CHAPTER XV

### FROM VICTORY TO VICTORY

AT a later date (September 12, 1916) a writer in the *Daily Chronicle* remarked: 'All reports, official and unofficial, concur in warm praise of the daring, resourceful, and effective work of the British airmen. Our supremacy over the Germans in the aerial arm is incontestable. Every day's fighting brings evidence of it. Not only are the exploits of our airmen the theme of admiring comment by our own soldiers, but they also extort reluctant tributes of admiration even from the enemy. Were it not for the accurate observation of these fearless, hawk-eyed scouts of the air, the marvellously effective results achieved by our gunners in the recent fighting would not have been possible, and the difficulties in the way of our heroic infantry would have been vastly increased.'

By general consent, then, our aerial scouts far surpass those of the enemy in



this work. Our aeroplanes have constantly hovered over his lines, his seldom over ours. Casualties have been inevitable in these perilous enterprises, but such is the dexterity of our fliers that the price paid has not been nearly so high as the risks run would suggest. In point of fact, our losses in the air have been less than those of the enemy, despite the greater enterprise and the bolder initiative of British airmen. 'From July 1 to September 17 in France we destroyed no fewer than 104 German aeroplanes.' These figures, compiled from the official reports, are the more impressive when it is remembered that it is the British rule not to include enemy machines damaged as lost, but only those that have, in fact, been actually destroyed. It is not surprising, in the light of the remarkable achievements of the British air service in the battle-line, that its critics, so loud-voiced a few months ago, have been silenced. Fresh in everybody's recollection is the ridiculous fuss made by some sensational newspapers over the Fokker and its wonderful qualities. Where is the Fokker now? Where have those scribes vanished who were daily 'crabbing' our air service, now admittedly the best in the world? Will they, wherever

they are, have the assurance to claim that it is their criticisms that have wrought what they would call the change? If so, it would be a baseless claim, absolutely without justification of any kind. Our Air Service has evolved steadily in strength and efficiency ever since the outbreak of war. Of course mistakes were made in the process of evolution and expansion. They could not be avoided in a new service, rapidly extending, and necessarily involving experimental changes in design and structure. But the progress has been steady and uninterrupted ever since the war began.

The truth is, the original expeditionary force was well equipped with aeroplanes and well-trained pilots. Later came the rapid expansion of the army, which imposed heavy new demands on the Royal Flying Corps. Those demands have all been met. It is to the credit of the late Lord Kitchener that from the first he recognized the great importance of the aeroplane in this war. 'When in the early autumn of 1914 authorization was sought for the manufacture of a sufficient number of machines to equip thirty new air squadrons he at once doubled the number, ordering not 720 aeroplanes, but 1,440.'

This was a notable instance of Lord Kitchener's prevision as to the scale of the war. Early in 1915 a very large new constructive programme was embarked upon, and the output since then has progressively increased. At first we relied chiefly on France for the engines of our flying-machines. Now some of our best engines are made at home.

The interim report of Mr. Justice Bailhache's Committee, issued early in August, 1916, said: 'There has been an enormous expansion of the Flying Service since the war; and all the critics of the Service, without exception, have borne testimony to the great progress made in its efficiency—a progress which, although most noticeable since the beginning of this year is, in the opinion of the Committee, the result of many months of strenuous work. To this efficiency the recent reports from the front bear eloquent witness.'

Early in September, 1916, one who enjoyed facilities for visiting flying centres, and learning at first hand of the progress of aviation in the country, remarked that 'there was no need to be an expert to appreciate the remarkable change that had come over certain districts, where, what a few months ago were mere country

villages or stretches of pine wood, have been transformed into industrial centres, with as many signs of bustle and industry as are to be found in the great shipbuilding centres of the British Isles.

‘A really remarkable thing is the enterprise and adaptability of firms who had never tackled the job before in organizing their work so that Britain’s output of machines was marvellously increased. Now the fruits of long and costly experimental work are being reaped, and the rate of output increases every week. This applies not to one establishment, but to the hundreds of works throughout the kingdom. So much is this the case that a country which at the beginning of war was believed to be behind in this branch of warfare is able not only to supply its own needs but also those of its Allies.’

The same careful, persistent, and unobtrusive research work that has brought British aircraft to the top has also resulted in great improvements in the construction and invention of bomb sights and dropping appliances. British engines, too, are now second to none in point of power, and great improvements are to be recorded in carburettors and special appliances for flight at high altitudes. The same pro-

gress is to be recorded in the matter of speed. The average speed of aeroplanes as used by our Air Service two years ago was from sixty-five to seventy miles per hour. Nowadays it is much higher.

As regards the future, a British officer remarked at the time now in mind: 'With all the results achieved so far, and the knowledge gained by this great war, there is no reason to doubt that the British Air Service—like the British Navy—will be the premier in the world. That is our constant aim.'



## CHAPTER XVI

### AIR SUPREMACY

THE great Somme offensive proved beyond all dispute the claim of England and France to the supremacy of the air. It is not, however, always clearly understood precisely what air supremacy means. To that remarkably able war correspondent, Mr. Philip Gibbs, we owe one of the clearest accounts given of the part played by aircraft in modern warfare.

Writing whilst with the British Armies in the field, September 12, 1916, Mr. Philip Gibbs said: 'To-day has been quiet on our front, without infantry fighting, up to the time I write. Southward, on our right, the French have been attacking heavily, with a bombardment that has swept a great stretch of country with fire between Combles and Péronne. When the French get to Combles—one need hardly use the word "if," as they are now hammering at its outskirts—they will link up

with us to the right of Ginchy and Leuze Wood, where the enemy is still holding out against us in a bad position, a few hundred Germans still defending themselves bravely in the "loop" trench which is flung like a lasso to the north-east of Guillemont. . . . We are still below the line of the Ginchy telegraph on the high plateau, so that we have not yet obtained full observation of the valley slopes on the other side, though by the capture of Ginchy itself we have robbed the enemy of his old point of view, which was of enormous value to him in registering upon our batteries and watching our movements.

'His only means of observation now is from the air, and yesterday there was visible proof of this, because fifteen or sixteen of his kite balloons came creeping out of the clouds above the plateau here, peering at us at close range. I should hate to be a German observer in one of those "sausages," as our men call them. They have a painful reminiscence of six such gas-bags brought down on one day, which was June 30 last, before the great battle began. Since then they have not floated aloft with any safety. On September 1 two of them were attacked by one of our

air-pilots, who fired machine guns at them and dropped bombs on to them so that they had to haul down hurriedly in a great scare, and a few days ago one of our knights-errant of the air crossed the enemy's lines at nearly 12,000 feet, mounted directly above a German balloon, and dived upon it, until he was no higher than 500 yards above it. Then he fired until he almost touched the great bag, and as he passed it burst into a vast flame and was burnt to a wisp of smoke in a few seconds. For fighting purposes these German "Peeping Toms" are not safe and certain means of observation with our airmen hovering near them, even though they have adopted a new means of defence, which is a gun below them sending up a high-reaching flame to scorch the wings of any British moth who dares to come too close. Our moths will take the risk. . . .

'To-day, a German plane did come across our lines, where I was wandering about some old dug-outs and trenches, watching our batteries plug away in a leisurely style, and wondering at the relative quietude of an *off day* of battle. But that hostile bird was scared back by some of our hawks, and they followed him well into his own country of the sky, with

their usual audacity. There is no humbug about all this. On this part of the battle-front we maintain the mastery of the air and blind the enemy's point of view. It makes all the difference to our artillery, and it is extraordinary to go through the recent history of the Royal Flying Corps and to note how many German batteries have been put under heavy gun-fire by aerial registration. It is not easy to knock out a battery by a direct hit. A gun is a small target, and shells may crump it all round and leave it unscathed; but on the laws of luck we have certainly scored many direct hits during the last week or two. Many ammunition dumps and pits have been blown up after aerial reports, as I have seen myself several times, watching the high enduring volumes of black curly smoke.'

Thus we see that the claim of England and her gallant Allies to the supremacy of the air is an established fact. Later, we shall see more closely still how this has been brought about, and that more than can be estimated is due to the individual courage of our heroic aviators.

## CHAPTER XVII

FLIGHT-COMMANDER ALBERT BALL, D.S.O.,  
M.C.

FEW airmen have a finer record than the young British officer, Flight-Commander Albert Ball, who for a while held a commission in the Notts and Derby Regiment, and later was attached to the Royal Flying Corps with the rank of Flight-Commander. He is a native of Nottingham, and joined the Sherwood Foresters as a private at the outbreak of the war. He has brought down no fewer than twenty-nine German aeroplanes and a Drachen observation balloon.

He is only twenty years of age at the time of writing (October, 1916), and is probably one of the smallest flying officers in the service—a small man with great courage. He has black hair, the eyes of a hawk, and a jaw that spells two words—determination and fearlessness.

During a brief period of leave in England



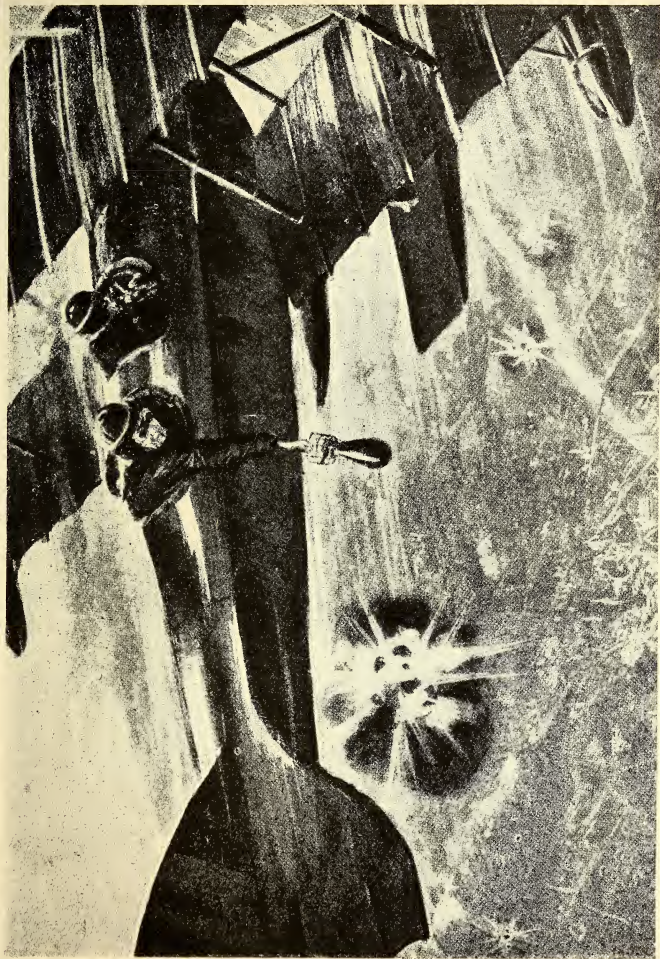
he had with him two noteworthy mascots—the propeller of the aeroplane in which he brought down fourteen hostile machines, and a mascot in the form of a large red nose-cap of steel. The Germans know this mascot well.

Whilst on his visit to England he said that his most ‘sporting fight’ was one in which he and his opponent went at each other for over half an hour. Then, when the ammunition had all gone, the two flew side by side and grinned at one another in mutual admiration.

‘We flew together,’ Lieut. Ball said, ‘in that way for quite a long distance, exchanging air greetings.’

Good fortune has, of course, played a part in Lieut. Ball’s many successes. He has himself been forced down several times, but thus far not once has he suffered any personal injury.

His exploits have won him the D.S.O., the Military Cross, the bar to the D.S.O., and the Russian St. George’s Cross, which is our Ally’s equivalent to the English Victoria Cross. The D.S.O. was bestowed on him for attacking seven enemy machines which he saw flying in formation. One of them he shot down at fifteen yards range, and the others retired.



### BOMB DROPPING.

The dropping of aerial bombs is a more or less haphazard affair, and unless the target is a big one, such as a town or dockyard, it is exceedingly difficult to take aim with any degree of accuracy.

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Immediately afterwards, seeing five more hostile machines, he attacked one at about ten yards range and shot it down. He then attacked another of the machines which had been firing at him, and shot it down into a village. Still not satisfied, he flew to the nearest aerodrome for more ammunition, and returning attacked three more machines.

The bar to the D.S.O. was awarded for subsequent acts of gallantry. On one occasion, observing twelve enemy machines in formation, Commander Ball dived in among them and fired a drum into the nearest machine, which went down out of control. Several more hostile machines then approached, and he fired three more drums at them, driving down another.

The record of this heroic young aviator is indeed remarkable, and one is not surprised when one learns that the British Commander-in-Chief, Sir Douglas Haig, has written to the young hero as follows:

‘ Well done! D. H.’

## CHAPTER XVIII

LIEUTENANT ALLAN BOTT, M.C.

LIEUTENANT ALLAN BOTT, who has been awarded the Military Cross for gallantry and devotion to duty in the field, is a member of the editorial staff of the *Daily Chronicle*, and when war broke out acted for a time as a special correspondent in France and Switzerland. He went to Lake Constance to investigate the building of super-Zeppelins, and while at Kreuzlingen, a small Swiss town which is really a suburb of Constance, made an involuntary trip into Germany by entering the wrong train. He spent some hours in Constance, and managed to escape detection at the frontier by travelling under the seat of a cab driven by a friendly Swiss who was going back to Kreuzlingen.

On his return to England, in November, 1914, Mr. Bott joined the O.T.C., and after training received a commission in



the R.G.A., whence he transferred to the Royal Flying Corps. Since the deeds which have won Mr. Bott the Military Cross he has been promoted from the rank of Second-Lieutenant to Lieutenant. The story of his flight on a blazing aeroplane has been told modestly by the young officer in a letter to his parents :

‘ All at once our fuselage shivered, and looking down it, I saw that Archie had left his card in the form of a piece of burning H.E.

‘ “ Fuselage burning—pass the fire extinguisher,” I shouted down the speaking-tube to my pilot. But the pilot’s earpiece had slipped from his cap during the dive, and he heard nothing. I stood up, leaned across and shook his shoulder. “ Pass the fire extinguisher,” I yelled.

‘ “ Hun down on the left,” he shouted back, my words having been lost in the roar of the engine.

‘ “ Fire extinguisher,” I called again.

‘ “ Why don’t you fire at that Hun ? ” was the reply.

‘ Seeing that the flames were licking their way back to the tail, I abandoned the attempt to get the extinguisher, and crawled down the fuselage to the scene of the fire. I managed to beat out the

flames, which had eaten half-way through one of the longerons.

‘ Meanwhile, the pilot had been attacking one of the enemy machines, and a bullet had gone into our petrol tank. Confronted with a diminishing pressure, we decided to make for Allied territory at once, and turned west.

‘ Five minutes later, by which time the number of revolutions had dropped alarmingly, we found the way barred by two more Boche machines. My gun having jammed, the pilot did the only thing possible—he went straight at the nearest German, firing all the time. The Boche swerved just in time to avoid a collision, but had obviously been hit, for his machine all but did a nose-dive, and he only landed with great difficulty.

‘ Then our engine petered out altogether, and there was nothing for it but to do a long glide and try to reach the lines. We were at 4,000 feet when we started to glide, and for a long time we didn’t know if we had sufficient height to get us across.

‘ But the pilot took advantage of a small salient, and we managed to glide over the trenches at a height of about 400 yards, fired at by machine-guns and rifles, besides dear old Archie. We landed

just behind the second-line trenches of a certain part of the French line, and, to our joy and astonishment, we were not shelled on the ground.'

It was an exciting adventure, showing the mettle of our aviators. There have been many such thrilling incidents on the various battle-fronts, some coming to light and winning well-deserved awards, others going to make up the great and glorious number of unrecorded deeds of gallantry.

## CHAPTER XIX

### FLIGHT-LIEUTENANT GUYNEMER

WE learn from the *Matin* that the French champion, Flight-Lieutenant Guynemer, once brought down three German aeroplanes in the record time of three minutes, and then himself had an extremely narrow escape from death. He was 3,000 yards up when a shell burst full in one of the wings of his aeroplane, and the frail bird seemed mortally wounded. The whole left wing was completely cut to bits, and the canvas fluttered in the wind, making the rent still worse. In a few seconds there was nothing left on the frame but a piece of canvas the size of a pocket-handkerchief.

The machine fell with a crash through space—it would not support its pilot any longer. Lieutenant Guynemer declares that he gave himself up for lost; the only thing he asked Providence for was that he should not fall in enemy territory.

‘I was powerless to make my will felt,’

he has said. ' My machine refused to obey me. At 1,600 yards I determined to make a fight for it all the same.

' The wind had brought me back into our own lines. I was almost happy. I had been thinking of my funeral, with sorrowing friends walking behind my last remains. I had nothing more to fear from the "pickelhauben." However, I felt that it was death, and that thought is not a very pleasant one.

' My fall continued. In spite of all my efforts, I could not do what I wanted with my machine. I tried to turn it first to the right and then to the left. I pushed and pulled, but all to no purpose. I could do nothing.

' Down I fell, faster and faster, drawn surely and inevitably to the earth, where I was going to be smashed to atoms.

' I shut my eyes, then I opened them again and looked down. At something like 110 miles an hour I crashed into a pylon. There was a terrific cracking sound and a deep thud. I looked round and found that nothing was left of my machine.

' How is it I am still alive ? I wonder myself. I think it was the straps which held me in my seat which saved my life. They had eaten right into my shoulders



anyhow, but if it had not been for them I should be dead at this moment.'

Only to the fortunate is it given to relate their experiences. Sudden and untimely death overtakes many heroic pilots, sealing their lips and robbing the world of personal records of their deeds. We are indeed fortunate in having from Flight-Lieutenant Guynemer a story so thrilling. He is one of our gallant Allies' most courageous and skilful pilots, and in aviation France is second to none. Later, we shall afresh see how rich she is in skilful and heroic airmen, and we shall see in particular how well the heroic aviator, Lieutenant Guynemer, has continued to acquit himself.

## CHAPTER XX

LIEUTENANT STEWART GORDON RIDLEY

It has been said that the story of Second-Lieutenant Ridley, a young British flying officer, is as great as the story of Captain Oates. 'Captain Oates walked into the Antarctic blizzard so that his comrades should have a better chance of living. Lieutenant Ridley, stranded in the burning Libyan Desert with an air mechanic, and seeing his tiny stock of water near its end, shot himself in the hope that his companion might live.'

The heroic young aviator went out singly on a machine from an oasis in the Libyan Desert as an escort to another pilot, who was accompanied by Air-Mechanic J. A. Garside. After flying for an hour and a half, the party failed to locate the camel patrol which had been sent out in advance to establish a temporary landing-place.

They encamped for the night. The next morning it was found that Lieutenant

Ridley's engine would not work, and it was agreed that the other pilot should try to discover the track of the camel patrol. He left his water and provisions with the others, and arranged to return on the following day. The pilot picked up the camel patrol, but when he returned to find Lieutenant Ridley and Garside they had disappeared.

Search parties, consisting of camel patrols, motor-cars, and aeroplanes were at once sent out. Nothing was discovered of the missing men until four days after the start of the original mission, when, twenty-five miles away from the spot where the first night had been spent, a second landing-place was found. The two men had evidently flown away again after patching up their machine. Two days later a motor party found the machine and the two dead bodies of the aviators.

During the search the footprints of the two men had been discovered. They were noticed to have been overtaken by a hostile camel patrol, and for a time it was believed that Lieutenant Ridley and Garside had been captured.

A diary kept by Garside throws peculiar light on the moving story :

*Friday.*—Mr. Gardiner left for Meheriq,

and said he would come and pick one of us up. After he went we tried to get the machine going, and succeeded in flying for about twenty-five minutes. Engine then gave out. We tinkered engine up again, succeeded in flying about five miles next day, but engine ran short of petrol.

*'Sunday.*—After trying to get engine started, but could not manage it owing to weakness, water running short—only half a bottle—Mr. Ridley suggested walking up to the hills.

*'Six p.m.*—Found it was further than we thought; got there eventually: very done up. No luck. Walked back; hardly any water, about a spoonful. Mr. Ridley shot himself at 10.30 on Sunday while my back was turned. No water all day; don't know how to go on; dozed all day, feeling very weak; wish some one would come; cannot last much longer.

*'Monday.*—Thought of water in compass, got half bottle; seems to be some kind of spirit. Can last another day. Fired Lewis gun, about four rounds; shall fire my "Very light" to-day: last hope without machine comes. Could last days if had water.'

On the following day the bodies were discovered by a motor-car.



The Commander of the Imperial Camel Corps reports that from what he discovered he has formed the opinion that Lieutenant Ridley gave his life in the hope of saving the mechanic. Added to this, the commanding officer of the Royal Flying Corps states: 'There is no doubt in my mind that he did this in an act of self-sacrifice in the hope of saving the other man.'

Lieutenant Ridley, who was affectionately known as 'Riddles' in the corps, came of a celebrated Northumbrian family, one of his ancestors being Bishop Ridley, who, bound to the stake at Oxford, 'played the man' with Latimer amid the flames. 'It may well be,' states a sympathetic admirer of this gallant officer, 'that there came across the desert from Gordon at Khartoum a message in the words of Latimer, "Be of good cheer, Master Gordon, and play the man."'

The fallen hero was a young man of attractive appearance and great charm of manner. His character, as known to intimate friends, confirms in all respects the interpretation put upon his last act, 'He gave his life in the hope that his companion might be saved.'

Both Lieutenant S. G. Ridley and Air-Mechanic J. A. Garside were unmarried,



but Garside was the only son of a widowed mother, and evidently in the mind of his heroic companion had special claims upon life.

A chaplain with a party of service men paid the last honours. At the head of the grave a cross was erected.

## CHAPTER XXI

### SOUS-LIEUTENANT LOUIS NOËL

AN Army Order, signed by General Sarraill, describes how Lieutenant Noël, when hardly convalescent from a grave operation, from the effects of which he was still suffering, effected on two occasions the bombardment of an enemy capital, and assured a long-distance link between two friendly armies, covering 1,100 kilometres (roughly 700 miles) there and back, of which 850 kilometres (over 500 miles) were over enemy territory.

Lieutenant Noël is an old pilot, remarkable for his address, his bravery, his coolness, and his modesty. Numerous difficult and perilous missions in France and in the Orient have been successfully carried out by him, and in addition to the Cross of the Legion of Honour he has earned the Médaille Militaire, the Croix de Guerre, and the Russian Cross of St. George.

Describing his remarkable flight from Salonica to Bukarest, a Roumanian journal (September 16, 1916) says: 'Roumania received yesterday the visit of gracious Allied winged guests, who come to us from Salonique, from the heroic army of Sarraïl, from that corner of ground which, right in the heart of the Balkans, sinks in like a vice, to choke in its powerful grip the Bulgars and our common enemies. As legitimate reprisal for the cowardly attack on Bukarest by the Zeppelins, the French aviators had received orders to bombard Sofia and reach Roumania afterwards. Yesterday, Wednesday, at 6.20 a.m., four French avions left Salonique. The first, a Farman biplane, was conducted by the heroic Sous-Lieutenant Noël, one of the best aviators of the French Army, who had already sunk two German avions in the course of seventeen months passed on the German front. The Sous-Lieutenant Noël brought with him Lieutenant Leseur, one of the best observers of the Army of Salonique. The second biplane was mounted by Sergeant Lamprou and the Soldier-Machine-Gunner Masson; the third by the Lieutenant Quillery and an observer, and the fourth by the Sergeant Rohan and a machine-gunner.

‘ At 8.40 the Noël biplane arrived above Sofia, where were to be seen several fires lighted by one of the French avions which had just passed. The Lieutenant Leseur let go many bombs. The aviators were perfectly guided by the sparkling dome of the cathedral. Let us say that the bombs thrown contained an explosive newly discovered by the French, and of an extraordinary power of destruction. Some German avions made chase to the French avions, which were soon able to distance them without being touched by their projectiles. At 11.20 a.m. the avions, piloted by the Sous-Lieutenant Noël, arrived at Bukarest, where he descended directly in the aviation field, in the midst of the delirious acclamation of the Roumanian aviators. The biplane Lamprou descended at Alexandria, and the two others landed, according to orders, at Turnu-Magaurele.

‘ Six hundred kilometres in a single stage! A hundred and twenty kilometres to the hour! The difficult crossing of the Balkans, with their heights of over 2,900 metres (9,000 feet), their pernicious currents, their thousand and one difficulties, effected without encumbrance, without the least accident! What marvellous exploit

of ability, of cool blood, of this legendary and magnificent heroism French! What new and beautiful page of glory to inscribe to the credit of the aviation French! Salutes to you, glorious heroes of the air! Salutes to you, well-beloved colours of France, which in these solemn hours come to unite yourselves to the tricolour Roumanian! Roumania has received you open-armed with legitimate pride, and from the plains of the Danube up to the slopes of the Carpathians, and from the banks of the Olt and of the Muresh, and from those of the Black Sea, to those of the Thass, a sole cry sincere, but which sums up all our sentiments, will hail you, "Vive la France! Vive l'armée française!!" "

High praise, very warmly expressed, and richly deserved!

'The aviators,' says one who writes with intimate knowledge of their movements, 'deserved thoroughly the acclamation. All the French pilots remained for a while in Roumania except Louis Noël, who flew back alone on the nineteenth again without landing. Owing to a head wind after reaching the seaward side of the Balkans, he only just scraped home without a drop of essence.' It should be added that



Lieutenant Noël is well known at Hendon, and has been justly termed one of the most decorated and distinguished of Hendon aviators.

## CHAPTER XXII

FLIGHT-LIEUTENANT HAROLD ROSHER,  
R.N.A.S.

ALL are conscious of the fact that to our Royal Naval Air Service the highest praise is due. The service is rich in heroic pilots. Few, however, are known by name to the wider public. But we must not suppose that our Navy has not in its service a goodly share of skilful and heroic pilots.

The letter, for instance, of Flight-Lieutenant Harold Rosher, R.N.A.S., written to his family and published by Chatto and Windus, reveals an aviator of fine character. 'One wonders,' a friend writes, 'whether most to admire the man in him, the gentleman, or the accomplished pilot of the skies who took all risks, keeping his head among them, because that way lay duty and achievement.' He is well reflected in his quiet, modest manner of writing. Here is a

little picture of the difficulties of flying at a great altitude, 'absolutely lost' and in search of bearings :

'I nose-dived, side-slipped, stalled, &c., &c., time after time, my speed varying from practically nothing to over a hundred miles an hour. I kept my head, but was absolutely scared stiff. I didn't get out of the clouds, which, lower down, turned into a snowstorm and hail, until I was only 1,500 feet up. I came out diving headlong for the earth.'

Mastery of the air becomes still more difficult when making a raid, as Lieutenant Rosher did more than once, on the German fortifications along the Belgian coast. 'A few seconds passed,' he writes, 'and the shrapnel burst a good deal short of me, but direction and height perfect. I turned out to sea and put another two miles between me and the coast. By now a regular cannonade was going on. All along the coast the guns were firing hasty, vicious flashes, and then a puff of smoke as the shrapnel burst. I steered a zigzag course and made steadily to sea, climbing hard.'

Of another time when he was under fire and travelling faster than he had ever travelled before, he writes: 'My

chief impressions were the great speed, the flaming bullets streaking by, the incessant rattle of the machine-gun and rifle fire, and one or two shells bursting close by, knocking my machine all sideways and pretty nearly deafening me.'

There is inspiration in the letters, chiefly, perhaps, on account of the fact that they were written for the late Lieutenant Rosher's dearest friends. He was killed at Dover, while trying a doubtful machine before allowing a fellow-aviator to ascend—a hero's death.

He has been described as one of the most promising officers in the Service. 'He was not merely a first-class pilot; he was a born organizer and leader of men, and, moreover, he had the heaven-sent gift of being personally popular with all ranks without losing his control over those below him.' Knowing personally all the senior officers under whom he served, they all had the highest regard for his personal qualities and for his ability as an officer.

'One may deduce,' says a writer in the *Aeroplane*, 'that his letters may fairly be taken as expressing the views, experiences, and feelings of the best class of R.N.A.S. officer, and his father, Mr. Frank Rosher, has done well in publishing

them, for they give a vivid and intimate picture of life in the Royal Naval Air Service during the early days of the war. The naval censorship is to be congratulated on having left untouched certain passages which indicate to those who have understanding some of the mistakes made in those early days in the supply or choice of the engines, aeroplanes, and landing grounds. There is no grumbling in the letters themselves, but plain statements are set down.'

The letters begin with Lieutenant Rosher's early experiences at the Bristol School at Brooklands, whither he went to learn as much as he could between applying for and receiving his commission, and the fact that he took this course is evidence of the keenness which in his short flying life carried him so far in the Service.

In one of his letters Lieutenant Rosher describes thus how he came through a curtain of fire: 'I found myself across the yards and felt a mild sort of surprise. My eyes must have been sticking out of my head like a shrimp's! I know I was gasping for breath, and crouching down in the fuselage.' He was too brave a man to be afraid of admitting that he was afraid.



Later in the book there is a story like a nightmare of how, when he went to attack an airship shed at Brussels, he was instead chased by a Zeppelin, which was already in the air when he got there, and so high up that his old machine could not reach it: the machine was, in fact, barely able to go fast enough to keep out of the way of the airship.

Lieutenant Rosher, although highly imaginative and impressionable, was, as we have seen, of the 'stuff' of which heroes are made. All who knew him join in acclaiming him a young officer of heroic mettle.

## CHAPTER XXIII

### AN OBSERVER IN THE R.N.A.S.

FURTHER light is thrown on the work of naval pilots by an observer writing in the *Border Telegraph*. 'Most of us know,' he says, 'what the pilot of an aeroplane does. But have we as true a conception of the observer's duties? The man who makes his mark nowadays is the specialist. There are first-rate aeroplane observers and first-rate seaplane observers. Common-sense plays a great part in the affairs of both. Any man may recognize a haystack from a moderate altitude, but how many can tell a topsail schooner from a barquentine, a flotilla leader from a light cruiser, or a German ship of the line from one of the Entente? Therein lies the secret.'

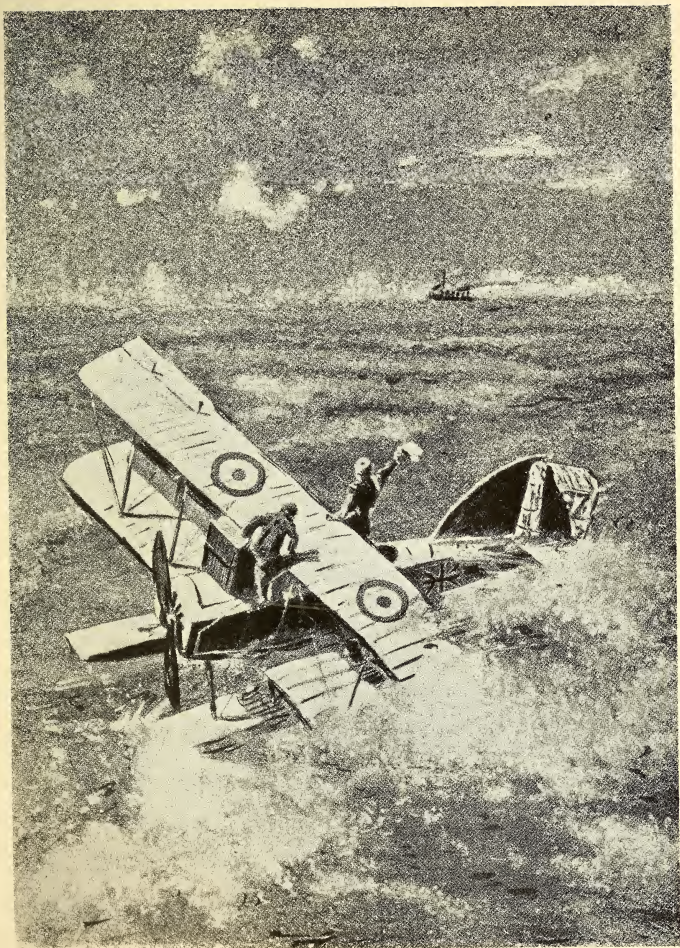
It is abundantly clear that a very necessary feature in a pilot is a thorough working knowledge of wireless telegraphy. The days of returning to report are passing. The observer ignorant of wireless is no

longer classed as an observer. He is becoming a 'back number.' It stands to reason that if a British seaplane sights a hostile squadron, and is, say, forty miles from her base, or from the nearest unit of the home fleet, then a precious forty minutes at least is going to be lost if the observer does not understand wireless telegraphy. 'Conversely a radio message, travelling at something like thrice the circumference of the earth in one second, will reach a receiving installation forty miles off while you cough, and a great deal quicker. That is one point, and the time was when it was thought any one could qualify in wireless. Quite a number of wise men have since then given up the attempt.' The observer must recognize ships at sight, and from a reasonable height, with the aid of prisms, be able to note their type, direction steering in, nationality, whether armed or otherwise, and their distance from the nearest mark, probably a buoy. He has, of course, to recognize and name the buoy. 'Sometimes he will make a hazard at the cargo carried by detecting a clue somewhere. In a channel recently swept clear of mines, and just open to traffic, when scores of merchant-men and patrol craft are under

way, the observer has got to get busy on the job. Very often if the pilot is daring and gets down to 500 feet, even the names of the ships can be discerned. Also the observer has got to discriminate between a U Boat and an E Boat and an S Boat.'

The writer of the article in the *Border Telegraph* goes on to point out that bomb-dropping is a difficult matter: 'Any one can drop bombs, you say. "Just heave 'em overboard!"' Exactly. But it's no use dropping a sixteen-pounder on a battle-cruiser. It mightn't like it. Besides, it won't wait till you drop it. You can take it that long before you get within dropping distance anything from a centimetre to a six-inch shell is up searching for you. The same when you spot a submarine. If you take too long calculating and guessing what curve the dropping bomb will take or how long it should take to reach the objective if the speed increases thirty odd feet per sec., they'll sling out the six-pounder at you, and mighty smart, too. A young man once dropped a few bombs for practice where he thought was well out in the bay. Alas! he forgot the curve a bomb makes in its flight. Don't ever forget that curve when you watch a





### GUARDING OUR COASTS.

A Naval Patrol in difficulties in the North Sea.

*Reproduced from 'Flight,' by special permission.*





hostile machine dropping bombs. On this occasion the friendly bombs struck the water a couple of hundred yards from a fairly crowded esplanade, and caused something analogous to a panic. You see, those bombs, having had the pins extracted, made water spouts when they burst, not to mention noise. Rumours flew so fast that the District Brigade Major, being informed that the German fleet were shelling the port, called out the military. Why, it is not for me to say, and I'm not quite sure if the special constables were not called out, too, because I was making tracks, like Huckleberry Finn, for the back country shortly—very shortly, indeed—after the occurrence.'

It is, of course, highly important that the observer should be able to tell the difference between the ships of Britain and her Allies and an enemy ship. Moreover, at 1,000 feet in a fairly good light the observer has to distinguish between a floating mine and a war channel buoy. 'Then he will never cause his machine to descend to 200 feet for the purpose of informing his pilot that *it's a buoy*.' All this time communication has to be maintained with the wireless telegraphy station ashore or afloat. Instructions sent to the

'plane are taken down and given effect to, or the observer's report sent, as required.

Furthermore, the observer must be a master of aerial gunnery, and he must withal be an air mechanic in the best sense. One can readily imagine what would happen if an aeroplane had to alight fifty or sixty miles out to sea with a stubborn engine, if the pilot had no knowledge of motor mechanism.

Finally, the observer must possess and use sufficient intelligence and aptitude to write a report satisfactory to the exacting minds of the Admiralty every time he returns from his patrols. The work, in brief, is not for every man. Many high qualities are required, and above all the naval observer must have the spirit of daring enterprise. He must be a man of heroic mettle.

## CHAPTER XXIV

### HEROES OF THE ROYAL NAVAL AIR SERVICE

HERE we shall see afresh that the British Naval Air Service is rich in men who possess to a remarkable degree the qualities named in the foregoing chapters. Flight Sub-Lieutenant Dallas, for example (who in addition to performing consistently good work in reconnaissances and fighting patrols since Decenber, 1915), has been brought to notice by the Vice-Admiral Dover Patrol for the specially gallant manner in which he has carried out his duties. Amongst other exploits is the following: On May 21, 1916, he sighted at least twelve hostile machines, which had been bombing Dunkerque. He attacked one at 7,000 feet, and then attacked a second machine close to him. After reloading he climbed to 10,000 feet, and attacked a large hostile two-seater machine off Westende. The machine took fire and nose-dived seawards. Another enemy machine then appeared,

which he engaged and chased to the shore, but had to abandon owing to having used all his ammunition. For these heroic exploits he has been awarded the Distinguished Service Cross.

The same honour has been conferred upon Sub-Lieutenant Oxley, who acted as observer with Flight-Lieutenant Edward H. Dunning, D.S.C., as pilot, on escort and reconnaissance patrol for a flight of bombing machines on the Bulgarian coast, on June 20, 1916. Two enemy machines were engaged at close range and forced to retire, and as our machine withdrew Flight-Lieutenant Dunning was hit in the left leg, and the machine itself was badly damaged. Sub-Lieutenant Oxley, having first improvised a tourniquet, which he gave to Flight-Lieutenant Dunning, took control of the machine, whilst the latter put on the tourniquet. The pilot was obliged to keep his thumb over a hole in the lower part of the petrol tank in order to keep enough fuel to return to the aerodrome, where he made an exceedingly good landing.

The Distinguished Service Cross has also been awarded to Flight-Sub-Lieutenant Donald Ernest Harkness, R.N.A.S., and Flight-Sub-Lieutenant Ralph Harold Collett,



R.N.A.S., in recognition of their services on the morning of August 9, 1916, when they dropped bombs on the airship sheds at Evere and Berchem St. Agathe. Flight-Sub-Lieutenant Collett dropped all his bombs on the shed at Evere from a height of between 300 and 500 feet, under very heavy rifle, machine-gun, and shrapnel fire from all directions. Flight-Sub-Lieutenant Harkness could not descend so low owing to the very heavy anti-aircraft fire which had by this time been opened on the machines, but he dropped some of his bombs on the shed, and then proceeded to Berchem St. Agathe, which he also bombed.

Honour has also been conferred upon Flight-Commander T. Harry England, R.N.A.S., in recognition of his services on August 26, 1916, when, accompanied by a military officer as observer, he flew a seaplane forty-three miles inland from the Syrian coast, crossed a range of hills 2,000 feet high, with clouds at 1,500 feet, and after dropping bombs on the station of Homs, returned safely to his ship. The machine was exposed to rifle fire at extremely low altitudes for long periods, and Flight-Commander England showed remarkable pluck, determination, and skill

in carrying out the flight under very adverse conditions.

Another officer to be decorated is Flight-Sub-Lieutenant Ronald Grahame, R.N.A.S., for exceptional gallantry in attacking and beating off four enemy seaplanes whilst on escort duty off the Belgian coast, September 22, 1916.

Mention must also be made of Flight-Sub-Lieutenant Stanley James Goble, R.N.A.S., who has been decorated in recognition of his services on September 24, 1916, when he attacked two hostile machines in the vicinity of Ghisteltes at close range, and brought one of them down on fire in a spiral nose-dive.

With each passing day the list of R.N.A.S. heroes grows, calling forth just pride. Further reference to individual cases will be given later on in these pages. It may be stated here, however, that the following officers, together with many others in the Royal Naval Air Service, have been decorated by the King :—

Squadron-Commander Reginald Bone, Flight-Commander Redford Mulock, Squadron-Commander Francis Haskins, Flight-Commander Douglas Evill, Flight-Commander Vincent Nicholl, Flight-Lieutenant John Petre, Flight-Lieutenant Roderic

Dallas, Flight-Lieutenant Ralph Collett. The first two officers named have been invested by the King with the Insignia of Companions of the Distinguished Service Order. The last-named officers have been awarded the Distinguished Service Cross.

## CHAPTER XXV

### TOLD BY THE ADMIRALTY

OFFICIAL communications are apt to make cold reading, but how much may be 'read into' them! Considered in the light of a lively imagination they convey a great deal. Between each line a story of considerable length and great interest might be written. Take, for instance, the following communication issued by the British Admiralty in the latter part of October, 1916: 'Yesterday afternoon, one of our naval aeroplanes attacked four enemy seaplanes off Ostend. Our machine was under fire from all four seaplanes, but succeeded in bringing down one, which was completely destroyed, and in driving off the others.'

This was the second British aerial success against odds in the same week. A few days previously a naval single-seater machine attacked a large German double-engined tractor seaplane. The enemy

pilot and observer were shot, and the seaplane dived vertically into the sea two miles off Ostend. Another British naval aeroplane destroyed a kite balloon in the same locality on this occasion.

We may crave for further details, but the time is not yet. Naval and military censors, though subjected to much adverse criticism, are wise in their generation.

Experience has shown that it is far better to give a light touch or two of romantic colouring, than to fall into the fault of conveying the kind of direct and definite information which might by some chance prove of service to the enemy. The following communications are above suspicion in the direction named, but they are not devoid of colour. They enable one to appreciate in a very real sense the heroic achievements of our naval aviators:

Between August 25 and 31, 1916, a series of attacks were carried out by naval aircraft upon the Bulgarian lines of communication beyond Kavala.

On the twenty-fifth the railway station and bridge at Buk (about twenty-two miles north-east of Kavala) were successfully bombed. On the twenty-sixth a similar attack upon the railway station at Drama (twenty-two miles north-west



of Kavala) resulted in the burning of a large petrol store and considerable destruction among the rolling stock in the sidings. Bombs were also dropped on the billets of the enemy's troops at Doksat (fourteen miles north-west of Kavala).

On the twenty-seventh, Okgilar (twenty-five miles north-north-east of Kavala) railway station, where the headquarters of the 10th Division were situated, was successfully attacked. The station buildings were set on fire and considerable damage was done to the permanent way.

On the twenty-eighth Drama Station was again bombed. The station buildings were considerably damaged. On the same day Kavala forts were attacked with excellent results.

On the twenty-ninth a large body of infantry and transport concentrated at Porna (about thirty-two miles west of Kavala, on the Seres—Drama line) were attacked. Considerable havoc was caused in the village and among the troops. A large fire was started among the stores in the transport park. The moral as well as the material effect of this bombardment seems to have been considerable, as a reconnaissance made on the following day showed

that all troops, camps, and transport had been removed from this district.

On the thirty-first an attack was made on Angista railway station (twenty-five miles west-north-west of Kavala). Direct hits were made and extensive damage was caused.

Further communications issued by the Admiralty in the same month showed that between August 25 and 29 a series of attacks and reconnaissances upon the enemy railway communications in Palestine were carried out by a British seaplane squadron. These fights were made under hazardous conditions, due to the fact that the railway runs, for the most part, behind a range of mountains difficult for seaplanes to surmount. Bombs were dropped on Afuleh Junction, where considerable damage was done to the rolling stock, permanent way, and to stores in the vicinity. A railway engine and fourteen carriages were also set on fire and destroyed. The railway stations at Tulkeram and Ardana and an enemy camp four miles north-west of Remleh (thirteen miles from Jaffa) were successfully bombarded and severely damaged. And on August 26 a seaplane bombarded the railway station at Homs (about eighty miles north of

Damascus). This flight, carried out at a distance of forty-five miles inland under extremely adverse conditions and through clouds low down on the mountains, was a singularly fine performance for a seaplane.

At a later date, from September 13 to September 22, further series of attacks were carried out by naval aeroplanes operating against the Bulgarian coast. On the thirteenth the head quarters of the Bulgarian 10th Division at Bademli Chiftlik were attacked, with considerable effect. Subsequently these head quarters were removed elsewhere, but were discovered, and attacked three days later, with excellent results. A large explosion was caused, and a fire, which lasted for a considerable time, broke out among the buildings. On the sixteenth considerable damage was caused to transport proceeding on the road towards Drama, and on the same day the shipping in Foujes harbour was bombed. On the seventeenth and eighteenth the rolling stock, gun emplacements, and stores at Drama station were bombarded and considerable damage done to them. On the nineteenth a column of troops and transport were thoroughly plied with small bombs, which caused considerable damage and confusion.

In October, 1916, a hostile seaplane was shot down and destroyed by one of our naval aircraft. The enemy machine fell into the sea. This was evidently the raider that approached Sheerness at 1.45 p.m., flying very high. Four bombs were dropped, three of which fell into the harbour. The fourth fell in the vicinity of the railway station, damaging several railway carriages. No casualties, however, were caused. Naval aeroplanes went up and the raider made off in a northeasterly direction. But our men of the Royal Naval Air Service pursued the enemy machine, and after a short, sharp battle in the air, sent it diving into the sea.



## CHAPTER XXVI

### HEROES OF FRANCE

*Vive la France!* To her heroic sons we owe in a great measure the supremacy in the air enjoyed by the Allies. Who can forget the heroic and skilful M. Pégoud? Great is our debt to him. With his remarkable skill as a pilot in the earlier days of flying—his wonderful diving, ‘turning and twisting,’ his ‘looping the loop’ and flying upside down, all with amazing ease and grace—he taught the astonished world a great object-lesson in the materiality of the air. ‘He showed that the air can give the aviator as much support as water to a fancy swimmer, and that where stability is lacking the human brain can supply the need, and that in human flight, like the bird and its wings, the machine and the individual can be in closest touch.’ To his bold example and skilful illustrations as a pilot we owe more than can be told. Above all, would we praise his heroic spirit.



It is indeed the heroic spirit of the airmen of France that has been largely the source of our great success. Who has not heard how at the time of the great German offensive against Verdun the aviators of France, thinking of naught but conquest for their beloved country, flew straight into enemy aircraft, thus robbing the enemy's pilots of their nerve, and gaining a supremacy by their self-sacrificing courage which has remained firmly in their grasp! And never must we forget that to the heroic courage of the airmen of France is added remarkable skill. Take, for instance, the triumphant French aviator Lieutenant Nungesser, who has brought down no less than twenty enemy machines. Such victories could only have been gained by great skill linked with indomitable courage.

The official communiqués of France tell many thrilling stories. Take, for instance, the following for September, 1916: 'One of our aeroplanes, which was attacked by four enemy machines, succeeded in freeing itself from its opponents, one of which, subjected to machine-gun fire at very close quarters, fell in the Chaulnes district.

'September 7.—Our Service d'Aviation took an active part in the actions of the

past days on the Somme front, watching the movements of the enemy's infantry, carrying out bombardments in the rear of the German lines, and attacking with machine-guns troops on the march. Our machines, armed with guns, repeatedly bombarded the enemy's trenches. During the air-fights which took place yesterday two machines were brought down by our pilots. One fell in the direction of Gueudecourt, and the other in the neighbourhood of Brie-en-Santerre.

'Five other German machines were forced to descend damaged.

'During the night of the sixth, in spite of unfavourable atmospheric conditions, sixteen of our bombarding aeroplanes dropped heavy bombs on railway stations, bivouacs, and enemy stores at Roisel and Villecourt (Sommecourt), where a big fire was caused.

'September 8. — Yesterday, on the Somme front, two enemy aeroplanes were brought down in the region of Epenancourt. Another was forced to land after a fight near our lines, and was destroyed by artillery fire.'

On the fifth day of the same month the champion French aviator of whom we have read, Lieutenant Guynemer, brought

down in the region of Ablaincourt his fifteenth enemy aeroplane.

On September 10, 1916, French aeroplanes were engaged in forty actions over the enemy lines, in the course of which the German aircraft suffered appreciable losses. On the Somme front, Adjutant Dorme brought down his ninth aeroplane, which fell at Beaulencourt, south of Bapaume. Four other German machines fell damaged—one in the region of La Maisonette, the other to the north and the east of Péronne. On the Verdun front an enemy aeroplane which came under machine-gun fire at very short range crashed to the ground near Dieppe. Another machine was brought down in the German first lines near Vauquois.

On the following night French aeroplane squadrons dropped 480 bombs on the stations and enemy depots in the region of Chauny. Several machines belonging to this squadron twice flew from their aerodrome to the place where the bombardment was carried out. During the same night eighteen aeroplanes dropped numerous bombs on the military establishments at Ham and in the region to the south of Péronne.

The French aviator, Adjutant Maxime

Lenoir, who distinguished himself at this time, calls for special note. On August 4, 1916, he brought down his sixth enemy machine, and performed other most valuable services. The coveted decoration, the Legion of Honour, has been conferred upon him.

Concerning French pilots in general, Mr. Lawrence Jarrold, writing in the *Daily Telegraph*, has said: 'In aviation, *les Boches n'existent plus*, every one in this camp agrees. Since the Somme offensive no German aeroplane has ever dared to cross its own lines into French territory. The French have invented methods of air photography the perfection of which is almost miraculous. "Does not the enemy do the same?" I asked. "No, he never comes to photograph us, because we never let him." In July fifty-eight German aeroplanes were brought down by the French attacking squadron. One of the new French machines alone brought down seven Boches, and not one of these machines was lost. These are the new attacking machines of extraordinary speed. There are other new French aeroplanes of great power. Some of these have lost a gunner killed, but all have always come back. One of the French aviator-captains



who showed me over the camp was the officer who had himself read the letter taken from a German aviator officer, moaning over the incompetency of German aviation. That German aviation has ceased to count on the Somme is no exaggeration at all. One morning I saw over twenty French sausages lolling in the air, where they cast a seeing eye upon the German positions. Not a single German sausage was anywhere to be seen—none has been seen for weeks. “The moment a German sausage comes up, one of my men rises and puts an inflammatory fuse into the thing, and it bursts up,” said the aviator-captain.’

Mr. Jarrold also reported that the same fate had befallen the German aeroplanes. ‘Not one dares cross over the lines. The result is that the German artilleryman is blind. He fires over and over again at the same place upon which he had long ago trained his gun, but he can fire nowhere else with any knowledge. French mastery of the air on the Somme is an absolute fact. But in the air, on the Somme, the Boches are now powerless, and the French work their war machine absolutely peacefully. Their aviators have told them that they are safe



from air attacks, and they know it is a fact.'

On September 15 French aviators particularly distinguished themselves in combats above the enemy's lines on the Somme front. Sub-Lieutenant Guynemer brought down his sixteenth, Sub-Lieutenant Nungesser his twelfth, Lieutenant Heurtaux his sixth, and Sub-Lieutenant de Rothefort his sixth aeroplane. Moreover, it was confirmed that, in one of the recent fights, Lieutenant Deullin secured his sixth victory. Two other German machines, attacked at very short range, were forced to descend in a seriously damaged condition. Moreover, on the Verdun front, an enemy machine was brought down to the north of Douaumont.

Bombarding aircraft showed great activity during the night of the fourteenth. A squadron of ten machines dropped eighty-five bombs on the railway stations and the lines at Tergnier and Chauny, and on the station and the huts at Guiscard. Many of the bombs found their mark. A big fire was observed at Tergnier and the beginning of an outbreak at Guiscard. Another French squadron dropped forty bombs on the barracks at Stenay, where several fires were observed, and forty on

the works at Rombach. One pilot got as far as Dillingen, in the Valley of the Saar, where he dropped eight bombs on a large workshop, causing a fire. During the same night the blast furnaces at Rombach received ten bombs, and the railway from Metz to Pont-a-Mousson four, which caused considerable damage.

Later, it was learnt that besides the nine German aeroplanes brought down on the French front on the fifteenth, six other enemy machines were forced to come down in a damaged condition in their own lines after fights with French pilots.

On September 17 it was confirmed that an enemy machine, which was attacked by machine-gun fire by Adjutant Lenoir, fell north of Douaumont. This was the eighth brought down by this pilot. It was also confirmed that Adjutant Dorme defeated his tenth enemy machine, which fell on September 15 between Erie and Ennemain.

At a later date (September 23), French aviators fought fifty-six engagements on the Somme front, in the course of which four enemy machines were brought down, while four others were seen to fall in a damaged condition. During these fights Adjutant Dorme brought down his eleventh

German machine (in the neighbourhood of Goyencourt), Lieutenant Deullin his seventh (south of Doingt), Adjutant Tarascon his sixth (south-west of Hergny). The fourth German machine reported as having been brought down fell south-west of Rocquigny. On the same day, in the region of Verdun, Adjutant Lenoir attacked a German machine at close quarters and brought it down in its lines north of Douaumont. This was the tenth machine brought down by Adjutant Lenoir.

At a later date, the French pilot, Adjutant Baron, accompanied by a bombardier, left his aviation camp at 7.15 p.m. and reached Ludwigshafen, in the Palatinate (about 100 miles from the nearest point of the French border), where three bombs were dropped on military establishments. Continuing their route, the aviators dropped three more bombs on an important factory at Mannheim (ten miles farther east), on the right bank of the Rhine, where a vast fire and several explosions were noticed. The aviators returned safely at 12.50 a.m.

On September 24, the German aviators having shown more activity than usual, French *escadrilles de chasse* delivered on the greater part of the front veritable aerial battles. French pilots gained great

successes and indisputably had the upper hand of the enemy. On the Somme front there were twenty-nine engagements; four enemy aeroplanes were brought down. One fell in the Vaux woods. Two others successively attacked by Sous-Lieutenant Guynemer came down in flames after some minutes' fighting. Sous-Lieutenant Guynemer consequently brought down the same day his seventeenth and eighteenth aeroplanes. The fourth machine fell south of Misery. Three other German machines were seriously hit and fell wrecked near Estrees; and in the region of Péronne four enemy machines were compelled to come to earth in their own lines. It is also confirmed that one of the German aeroplanes, given as seriously hit on September 22, was brought down between Misery and Villers-Carbonnel. Farther to the south, between Chaulnes and the Avre, six German machines were brought down. One of them fell in flames near Chaulnes, in the course of an engagement between four machines and a group of six enemy machines. The second fell at Licourt, the third at Parvillers, the fourth was seen crashing to earth south of Marchelepote, the fifth and sixth were brought down by the same pilot in an engagement between one



of the French squadrons and six German aeroplanes, and they fell in the region of Andechy, one of them in the French lines. In the region north of Chalons a Fokker fell in flames near the French lines, and another Fokker appeared to have been seriously hit. In the Verdun region an enemy aeroplane was fired at by machine-guns at close quarters, side-slipped, and descended on the Poivre Hill. East of St. Mihiel a Fokker nose-dived into its own lines. In Lorraine a French pilot pursued a German machine for twenty kilometres ( $12\frac{1}{2}$  miles) into its own lines, killed the passenger, and compelled the machine to descend. Another enemy machine came down in the Forest of Gamecy. Finally, in the Vosges, two enemy aeroplanes nose-dived into their own lines in an abnormal manner after fights with French pilots.

It is noteworthy that on the following morning Captain de Beauchamps and Lieutenant Daucourt, each piloting a machine, started at eleven o'clock from their aerodrome, and threw twelve bombs on the factories of Essen (Westphalia). The aviators returned safely to their landing-point after accomplishing a flight of 800 kilometres (500 miles)—a remark-



able achievement! Captain de Beauchamps, who is twenty-nine years of age, once commanded a squadron on the Eastern frontier, and Lieutenant Guynemer served for some time under him. Lieutenant Daucourt, thirty-seven years old, also has many long-distance flights to his credit. In April, 1913, he flew from Paris to Berlin, a distance of 560 miles, beating his own 'record' in the contest for the Pommery Cup, when he made the journey from Calais to Biarritz. In October of the same year he started with a passenger for Cairo, a flight of 3,750 miles, but was forced to land in the Cilician Taurus, on November 26, owing to an accident. He has been mentioned in Army Orders for his fine courage and tenacity in the accomplishment of missions. In February, 1915, when attacked by two German aeroplanes and his machine-gun had jammed, he escaped by daring airmanship. In the following month he attacked four enemy machines single-handed, and put them to flight.

Special reference must also be made to the heroic French aviator, Adjutant Tarascon, who was mentioned in the official communiqué of September 18 as having brought down five German aero-

planes. We learn from a French source that he enlisted voluntarily, having been rejected owing to an aviation accident, of which he was the victim, in peace time. He was picked up in a very serious state, and it was found necessary to amputate his left leg. Tarascon temporarily abandoned the sport which cost him this infirmity, but asked to be allowed to resume his position as pilot when it was a question of defending his country. The courage of this hero cannot be sufficiently admired. He is an expert, and one would never believe, whilst watching the evolutions of the aeroplane which he handles with such skill, that he had but one leg. Recently, during one of these astonishing raids, almost level with the tops of the trees above the enemy lines, which have become a speciality of Allied aviation, Tarascon received a shell splinter in his artificial leg, the shot being so violent that the leg was broken.

A number of American volunteers are in the French Air Service. Inspired by the example of the heroic sons of the country they delight to serve, they have earned high honours and warm praise. Describing an action witnessed from an anti-aircraft gun emplacement, one writer says :

'The Germans dropped back for a moment, then the whole force came forward to attack the Americans. There was a circular counter formation on the part of the Americans, and the rapid firing of the guns was accelerated. . . . At times it was impossible to distinguish the Germans from the Americans in this most unequal fight. We saw Prince and Balsley capsize and fall. In the apparent death-drop Prince righted his machine when near the ground, and returned to the aviation field uninjured, but with a bullet through his helmet. Balsley was not so fortunate. He owes his life, perhaps, to the fact that his feet were strapped to the controls. An explosive bullet struck him on the hip, rendering him helpless for a time, but he was able to regain command of his machine sufficiently to make a landing, though the machine was completely wrecked. Balsley explains that his machine-gun jammed during the second rush of the Germans. He is now in the American Ambulance Hospital in Paris. His wound is not believed to be dangerous, but the doctors say he will never fly again. Just after these two men had fallen, when things looked bad for the American squadron, reinforcements of French

machines came up. The Germans were soon driven back across the lines, and the engagement was over. One German machine was destroyed and its two occupants killed, others were injured. The French suffered no casualties except the wounding of Balsley and the loss of his machine.

‘ The American aviators are not reckless or foolhardy, but brilliant fliers, who use their heads. They continue to be very active, despite unfavourable circumstances, such as repeated bombardments of their camps and hangars by German aviators. The Germans try constantly to draw out the Americans. At Belfort they sought to get them at a disadvantage, and again just recently in a raid on Bar-le-Duc. In this latter engagement the Americans ascended as the invading squadron’s approach was telephoned from the firing line. They met and opened fire directly over the French hangars at Bar-le-Duc. The Germans again outnumbered them two to one. Both the French captain and Prince were forced to come down, one with a punctured gasoline tank, and the other with his ammunition box blown off by explosive bullets. Soon after Cowden’s machine-gun choked, and he,



too, descended, leaving Hall and Chapman to fight off the Germans alone until reinforced by a French squadron from Toul. They were then able to force the Germans back into German territory and inflict heavy losses, though no injuries were suffered on the French side.'

Among the American aviators who have been most successful is Lieutenant Thaw. He has fought sixteen battles and brought down five adversaries. His machine received several bullets while over the German lines at Verdun, one of which hit him in the elbow, breaking a small bone. He has recovered, and is again with the Corps. Sergeant Kiffin Rockwell destroyed a German 'plane on May 18, and attacked several on May 26, when he was badly wounded in the face. He brought down two German machines during the battle at Verdun. Sergeant Bert Hall, after a long, hard fight on May 22, brought down a German from a height of 13,000 feet. He followed it down 3,000 feet, and saw it crash to the ground just within the German lines.

On September 25, 1916, French *avions de chasse* fought forty-seven engagements on the Somme front. Five enemy machines were brought down, while three more,

which were seriously damaged, were obliged to alight. Another machine, which was attacked at close quarters with a machine-gun, fell disabled, but could not be followed to the ground. During these engagements, Sous-Lieutenant Heurtaux brought down his eighth machine in the direction of Villers Carbonnel, and Adjutant Dorme his twelfth machine north of Lieramont. In the Woevre, Adjutant Lenoir attacked an enemy machine constructed to carry three, and after a very hard fight brought it down near Fromezey (north-west of Etain). This was the eleventh machine brought down by this pilot.

Further aerial combats, which again resulted in victory for the French aviators, were fought on September 27. Sous-Lieutenant Nungesser in the course of the day alone brought down two German aeroplanes between Le Transloy and Rocquigny, and an enemy captive balloon, which fell in flames in the Neuville district. These three victories bring up to seventeen the number of machines brought down by this pilot. Moreover, two other German aeroplanes which had been seriously hit fell out of control—one towards Le Transloy and the other near

Le Mesnil Bruntel. Another captive balloon, attacked by French pilots, collapsed near Nurlu. In Champagne a Fokker, attacked at close quarters, fell at first in spirals, then vertically, and was smashed, crashing to the ground at Grateuil.

It is noteworthy that the much-vaunted German Fokker machine was now under the shadow of defeat. On September 27 a Fokker, on being attacked by a French pilot, crashed to the ground near Rheims. Another, shortly after, 'nose-dived' into its own lines. Many other German machines of the same type fell victims to the courageous and skilful French aviators.

The French communiqué of September 24 recorded Lieutenant Guynemer's seventeenth and eighteenth victories over German aircraft on the Somme front. As a matter of fact, Lieutenant Guynemer destroyed three aeroplanes on that day while extricating a brother aviator from the clutches of five enemy craft. Two of the latter took flight, and three remained. At 11.22 the first German was shot down. The second followed thirty seconds later, and the third, already in full flight, was destroyed at 11.25.

A summing up of the French communiqués issued between July 1 and

September 25 showed that 250 enemy aeroplanes had been destroyed or brought down out of control within their own lines; twenty-two observation balloons had been burned; 142 objectives within the territory occupied by the Germans had been hit; and 5,426 bombs had been dropped. Such figures bear eloquent testimony to the air services of our gallant Allies.

Further good work was done in October of the same year. On the second day of the month Sergeant Sauvage brought down his fifth German machine. A few days later Adjutant-Pilot Baron and Adjutant Chazard bombarded at Stuttgart the Bosch magneto factory. Dense smoke was seen rising from this factory as the result of the bombardment. Stuttgart, the capital of Würtemberg, is 100 miles from the nearest point on the French frontier. The return journey, therefore, involved a flight of at least 200 miles.

On the tenth day of the same month, in addition to numerous surveillance, reconnaissance, and range-regulating flights, French aeroplanes fought fifteen engagements in the Verdun region, fourteen south of the Somme, and forty-four north of that river. In the course of the latter engage-



ments four enemy machines were brought down, one by Adjutant Dorme, who thus brought down his thirteenth machine. Six other enemy machines were seriously hit and fell into the German lines.

It is noteworthy, as showing the unity of action between the French and British Air Services, that on October 13 a Franco-British squadron of forty aeroplanes bombarded the Mauser Works at Oberndorf on the Neckar. Four thousand three hundred and forty kilogrammes (over four tons) weight of projectiles were dropped, and their attainment of the objectives aimed at was noted. Six German aeroplanes were brought down in the course of fights into which they entered to defend their factories. The raid on the Mauser factory was one of a series of attacks on important works in Germany carried out by Allied aviators. During the previous three weeks military establishments, blast furnaces, and factories had been raided.

A new method of warfare for aviators, first undertaken by French pilots, is that of flying low over the enemy's lines, and attacking enemy troops with machine-gun fire. The *Daily Telegraph* Paris correspondent, praising this work, has stated that 'the aviators attached to the infantry

belong to a special section. They precede each attacking wave by a few yards and fly extraordinarily low, sometimes not more than a hundred yards or so above the enemy's lines, upon which they drop bombs, thus paving the way for the infantry advance, and simultaneously, of course, signalling back information to the infantry as it comes on.'

On October 22 it was reported that Adjutant Dorme had brought down his fifteenth machine at Barleux, and Marechal de Logis Flachaire his fifth machine, which was dashed to pieces on the ground in the same district. On the following day, in spite of a thick mist, French aircraft displayed activity and fought some twenty engagements. Three enemy machines were brought down—one to the north of Azannes, another near Ornes, while the third was seen to fall with a broken wing north of Romagne. Following upon an engagement fought by one of the French air squadrons with an enemy group in the region of Verdun, one of the French pilots came down to within about a hundred yards from the ground in order to set fire to a shed and to open with his machine-gun on a motor-car.

Later it was reported that Sergt.-Aviator

Sauvage had brought down his fifth German aeroplane. He was the youngest French aviator to be mentioned in dispatches. His one desire, we learn, since he was fourteen, was to become an aviator. At sixteen he was apprenticed to a small aeroplane builder. He worked hard, and under the direction of the aviator Gilbert he built a machine to which he added some small improvement. He had just gone to Valenciennes to try this machine when war broke out, and he had to make off, leaving the aeroplane behind, which presumably fell into the hands of the Germans. After one year of war he managed to get taken into the aviation service, got his pilot's licence in March, and went to the front three months later.

It may be recorded here that a new name has been added to the official list of French aviators considered worthy of mention in dispatches. This distinction is awarded only after an aviator has brought down his fifth enemy machine. At the time of writing (October, 1916), the following heroic French aviators enjoy this remarkable distinction: Sous-Lieutenant Guynemer, who has brought down eighteen enemy machines; Sous-Lieutenant Nungesser, seventeen; Adjutant Dorme,

fifteen ; Sous-Lieutenant Navarre, twelve ; Adjutant Lenoir, eleven ; Lieutenant Heurtaux, ten ; Sergeant Chainat, nine ; Lieutenant Deullin, eight ; Sous-Lieutenant Chaput, eight ; Sous-Lieutenant De la Tour, seven ; Sous-Lieutenant Pégoud, six (killed in action) ; Sous-Lieutenant De Rochefort, six (killed in action) ; Adjutant Tarascon, six ; Adjutant Bloch, Sergeant Viallet, Sergeant Sauvage, Adjutant Lufbery (American), and Marechal des Logis Flachaire, each five.

There can be no fitting praise in view of such achievements. Truly France has many heroic sons ! Again comes the cry—  
*Vive la France !*



## CHAPTER XXVII

### AWARDS AND DECORATIONS

THE various awards and decorations conferred upon aviators and other men of heroic stamp claim our keenest interest. Mention has already been made of the Victoria Cross and other familiar orders. Here we purpose setting down a few of the outstanding points of interest regarding leading French and Russian orders and decorations, and of certain medals awarded by our own King for heroic and meritorious service.

The Legion of Honour is the only *Order* of France. It was instituted by Napoleon in 1802 as a general military and civil order of merit. The French Cross of War dates from 1915, and is awarded for distinguished service to both officers and men. The qualification for the distinction is that the action must be mentioned in the orders of the day. The French military medal was created in 1852. N.C.O.'s and

men are eligible. It is also deemed the highest decoration for generals.

The Russian Order of St. George was founded in 1769 by the Empress Catherine II. It was originally intended to be a reward for conspicuous bravery in the field. It consists of eight classes, the first four of which are higher degrees, and are awarded to officers only, the remaining four being reserved for men. The peculiar method of tying the ribbon of the order indicates the various classes.

The English Distinguished Conduct Medal was instituted in 1862, and is awarded for individual acts of distinguished conduct in the field. The Distinguished Service Medal was instituted in 1914, and is awarded to chief petty officers and men of the Navy, and non-commissioned officers and men of the Royal Marines in cases where the Distinguished Service Order would be inappropriate. The Distinguished Service Cross was originally the Conspicuous Service Cross instituted in 1901. In 1914 the title was changed to the Distinguished Service Cross, and all officers below the rank of Lieutenant-Commander were made eligible for the award. It is frequently bestowed in cases where services are not considered



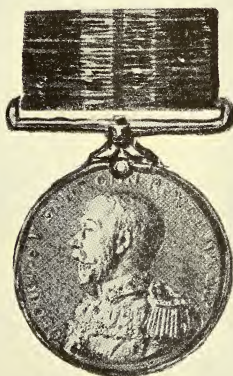
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### AWARDS AND DECORATIONS.

1. The Legion of Honour: Fifth Order, Croix Chevalier.
2. The French Cross of War.
3. The English Distinguished Service Cross.
4. Distinguished Service Medal.





of a suitable nature for appointment to the Distinguished Service Order.

We shall here see afresh how widely and how well awards and decorations have been earned by our airmen. Captain William Douglas Stock Sanday, M.C., R.F.C., has been made a Companion of the Distinguished Service Order for conspicuous gallantry and skill. He had led over thirty-five patrols with great courage. On one occasion a machine of his formation was attacked, but he charged and brought down the enemy machine in flames. He has destroyed at least four enemy machines.

The same honour has been conferred upon Lieutenant (temporary Captain) Alan Machin Wilkinson, for conspicuous gallantry and skill. He has shown great dash in attacking enemy machines, and up to the end of August, 1916, he had accounted for five. On one occasion while fighting a hostile machine he was attacked from behind, but out-manceuvred the enemy and shot him down. Finally he got back, his machine much damaged by machine-gun fire.

The Military Cross has been awarded to Lieutenant (temporary Captain) Leslie Peech Aizlewood, for conspicuous gallantry

and skill. Seeing five hostile machines, he manœuvred to get between them and their lines; then, diving on one of them, he reserved his fire till he was only twenty yards off. The hostile machine fell out of control, but he was so close to it that he collided with it, breaking his propeller and damaging his machine. Though it was barely controllable, he managed to get back to our lines.

The same decoration has been conferred on Lieutenant (temporary Captain) John Oliver Andrews, for conspicuous gallantry and skill. He has proved a fine leader of offensive patrols, and has himself shot down four enemy machines. On one occasion he got within twenty-five yards of an enemy machine under heavy fire and brought it down a wreck.

The Military Cross has also been earned by Lieutenant (temporary Captain) Keith Riddell Binning, for conspicuous gallantry and skill, notably when he made two patrol flights over the enemy's trenches at a height of under 1,000 feet. His machine was repeatedly hit by machine-gun and rifle fire, but he rendered exact reports of the position of our own and the enemy's troops.

Lieutenant Allan Duncan Bell-Irving has

also earned the Military Cross for gallantry and skill in attacking a hostile balloon at 1,000 feet under heavy fire and bringing it down in flames. On a previous occasion he brought down a hostile machine.

Second-Lieutenant Walter Horace Carlyle Buntine is another recipient of the Military Cross. As escort to a bombing raid he attacked several hostile machines, one of which fell to the ground nose first. Later he was attacked by three enemy machines, his own machine being damaged and himself severely wounded. With great skill he managed to land in our lines, though most of his propeller was shot away and his machine otherwise much damaged.

Second-Lieutenant Clifford Westley Busk has also been decorated with the Military Cross. He has taken part in many reconnaissances and fights, and on one occasion shot down an enemy aeroplane. On another occasion, when his pilot's control wires were cut and the machine went into a spin, he helped to restore stability by leaning far out on the upper side, and remained in this position till the machine got home.

Another officer in the R.F.C. to receive the Military Cross is Lieutenant (tem-

porary Captain) James Lander Chalmers. He has done much fine counter-battery work, often flying very low under heavy fire from the ground. On one occasion one of our shells broke the main spar of his machine. On another in one flight he dealt effectively with four enemy batteries.

It will be seen that the Military Cross is a much favoured decoration for officers of the Royal Flying Corps. The deeds of gallantry and skill, however, for which the Cross has been awarded vary in many cases. Second-Lieutenant Leslie Frederick Forbes, has, for instance, been decorated for conspicuous gallantry and ability in attacking hostile machines and bombing railway lines, especially on one occasion, when he descended to 350 feet in order to accomplish his object. Second-Lieutenant Euan James Leslie Warren Gilchrist has also been decorated for conspicuous gallantry and skill when he attacked a hostile balloon and brought it down in flames, although under heavy fire and attacked by six hostile machines.

The case of Second-Lieutenant (temporary Captain) Ian Henry David Henderson is also worthy of special note. He drove down a machine out of control,



and two days later dispersed six enemy machines which were attacking his formation. A few days later again he brought down an enemy biplane, the observer being apparently killed. A week after this he attacked and drove down another machine which had wounded his leader. He has also carried out several excellent contact patrols and attacked retiring artillery and a kite balloon. Another heroic pilot (Second-Lieutenant Geoffrey Terence Roland Hill) attacked an enemy kite balloon under very difficult circumstances, and continued firing until he was within twenty feet of it. He was then only 1,000 feet from the ground and under heavy fire from anti-aircraft and machine-guns, but on looking round he saw the burning wreckage of the balloon on the ground. Mention must also be made of Captain Henry John Francis Hunter, who has done fine work for the artillery, and has accounted for many enemy guns. On one occasion, when a heavy storm drove all other machines back to their aerodromes, and the enemy guns took the opportunity to become active, he remained up and did excellent work.

Lieutenant (temporary Captain) Charles C. Miles has earned distinction for showing

great dash in contact patrol work. On one occasion he reconnoitred an enemy trench at 500 feet altitude, under heavy fire, which severely damaged his machine. Five days later, while working at 600 feet, he was severely wounded.

On one occasion another heroic pilot, Captain Pearson, with one other pilot, attacked ten hostile aeroplanes. The other pilot had his controls cut and had to return, but Captain Pearson fought on till all the enemy aeroplanes were dispersed. On another occasion he bombed trains from a low altitude. He has done other fine work, and has been decorated by the King. Another pilot of similar stamp is Second-Lieutenant Herbert H. Turk, who, with Lieutenant Scott as observer, attacked seven hostile machines flying in formation. One was brought down as a wreck. When turning to meet another machine his rudder controls were shot away, and his machine got into a spinning nose-dive. After falling 5,000 feet he partially regained control, and, though his machine kept on turning, he managed to land safely. The machine was badly damaged; but, thanks to his skill, neither he nor his observer was hurt. He has been awarded the Military Cross.

Another to receive the Military Cross is Lieutenant John R. Philpott for conspicuous gallantry and skill in descending to about 300 feet, under heavy fire of all descriptions, in order to bomb a train. Finding that his fellow-officer, Captain Tyson, had wrecked the train, he dropped his bombs on a station and then assisted him to beat off hostile machines. He then, with Captain Tyson, attacked a machine which was endeavouring to leave the ground. He had previously displayed great gallantry.

In recognition of their gallantry and skill Captain J. Upton Kelly and Captain A. M. Miller have been made Companions of the Distinguished Service Order. Captain Kelly when making a reconnaissance came down to 700 feet under heavy fire, and obtained valuable information. Again, in attempting to observe through clouds, he flew over the enemy lines at 500 feet, and although severely wounded and almost blind, he brought his machine back to our lines. Captain Miller on one occasion flew close to the ground along a line of hostile machine-guns, engaging them with his machine-gun, drawing their fire, and enabling the cavalry to advance. Again, when alone, he engaged five enemy machines,

bringing one down, and also successfully bombed a troop train, coming down to 300 feet to make sure of hitting.

Besides the names already given, the following officers have been awarded the Military Cross: Lieutenant Norman Brearley, Captain Dixon-Spain, Second-Lieutenant Spencer Reid. Each has performed remarkable feats. Lieutenant Brearley on one occasion went out to attack an enemy kite-balloon and managed to get immediately above his objective. He then pretended that he had been hit by anti-aircraft fire and side slipped down to 1,500 feet, when he suddenly dived at the balloon, which was being hauled down, and fired into it until he almost touched it. When at 300 feet from the ground, the balloon burst into flames and was entirely destroyed. Captain Dixon-Spain, with Second-Lieutenant Reid as pilot, attacked and drove back a hostile machine. A few minutes later four hostile machines were seen, three of which were attacked, one after another, and driven back, the fourth being accounted for by another patrol. Another time they attacked two hostile machines, shot one down, and drove the other back. Two days later they attacked two more machines, of which one is believed to have



been destroyed, the other being pursued back to its aerodrome.

Reference must also be made of the courage and fortitude of Lieutenant Eardley Harper, who has been awarded the Military Cross for conspicuous skill in many aerial combats, and notably when his machine, with two others, met six hostile aeroplanes. He at once attacked, and shot down one machine. He then attacked and drove down a second one. A thick fog came on, and in landing his machine was wrecked, and he was badly cut and shaken. He managed, however, to walk two miles to his aerodrome and to deliver his report before collapsing.

Another noteworthy case is that of Lieutenant Charles M. Chapman, who has been awarded the Military Cross for conspicuous skill in action against hostile aeroplanes. On one occasion he attacked three 'L.V' machines and one Fokker, shooting the latter down. Later, during an air battle with eleven enemy machines, he brought another Fokker down.

## CHAPTER XXVIII

### FRENCH APPRECIATION

THE *Matin* has published a most appreciative article on the heroic deeds of British aviators. 'The English aviators,' says the writer, 'are entrusted with the same mission as the French. The same halo of brilliancy encircles them, they obtain the same glorious results, and yet there is an indefinable something which distinguished them from their French colleagues. What is this elusive quality which enables one to distinguish the nationality of the aviator on merely hearing the details of an aerial exploit? I think it is because our Allies carry on aerial warfare in a more sporting than military spirit. They regard an encounter in the air with their abhorred enemies as an exciting and thrilling experience.'

The writer goes on to observe that the English mode of action, while permitting the British remarkable results, has also the inconvenience of augmenting the

losses. 'The combat in the air is often unequal, the Englishman will not hesitate to attack single-handed ten or twelve Germans. He brings down several, but is often beaten himself in the long run by force of numbers. The English, with perfect loyalty, state in their official communiqués the number of their aeroplanes which do not return to their base. In September they lost forty-eight airmen, brought down fifty-three enemy machines, and damaged about one hundred. The French during this month brought down fifty-six, damaged fifty-seven, but their losses were very much less.

'But marvellous,' the article continues, 'are the deeds of heroism inscribed each day in the annals of the Royal Flying Corps. I will cite a few of them. During a reconnaissance in Egypt an aeroplane was attacked by two enemy machines. A bullet broke the English pilot's jaw, another pierced his shoulder, a third found a resting-place in his left leg, and finally his left hand was also wounded. He fainted, regaining consciousness when only 150 metres above the earth. He was over his own lines. He brought his machine safely to land, and then found that his observer was wounded in the chest and

shoulder. With difficulty he made his report and fainted and died.'

Another case cited is that of the heroic aviator Lieutenant Albert Ball, who during a bombing mission noticed twenty enemy aeroplanes, divided into three groups. He advanced towards the first group, which contained seven machines, and fired on them at a distance of ten yards. The first German wavered, wheeled, and fell. He then threw himself upon the others, firing two volleys at them. The first took fire and fell. The others attempted to escape, but Lieutenant Ball immediately started in pursuit and followed them until he had discharged his last cartridge, one of the enemy machines falling on a house in a village. Ball then returned for more ammunition, came back to the charge, and attacked three more aeroplanes, which he put out of action, then, having no more petrol, was obliged to return to his base with his machine disabled.

In another part of the article the writer observes that attacks on trains are very popular with the R.F.C. 'In spite of the bad weather Lieutenant Owen Tudor Boyd one day descended to within 350 metres in order to drop bombs on a passing train. Lieutenant Gordon Kidd



descended from 2,200 metres to 300 for the pleasure of dropping a bomb on a munition train, which caught fire and blocked the line with wreckage. Lieutenant Taylor derailed a troop train. Lieutenant Gordon Gould, attacked during a reconnaissance, was wounded in the leg. In spite of the intense pain, he brought down one enemy machine, severely damaged another, and then calmly continued his appointed work.'

Special reference is also made to Captain Gerald Speim, who, one day, observed four enemy machines. He attacked three, one after the other, and put them to flight, the fourth in the meantime being engaged by another Englishman. The following day he fought two enemy machines, brought one down, forced the other to recede, and continued his successful career by again bringing down a German machine the next day. Other British airmen referred to in the article are Lieutenant Evans and Lieutenant MacLaren. Lieutenant Evans, during one flight, conquered four German machines, crashing them to earth. A remarkable feat was accomplished by MacLaren. Flying over an enemy aerodrome, he noticed a machine about to rise. Pilot and observer were in their places, mechanics

held the wings. MacLaren came gently down to within thirty yards and dropped a bomb. Aeroplane, pilot, observer, and mechanics were vanquished. Then MacLaren went serenely on his bombing way, set fire to a hangar, and destroyed the Fokkers it contained.

The French writer of the article concludes by saying that among the many heroic deeds performed by British aviators there is one which would have inspired the admiration of Edgar Poe: 'An English aeroplane was soaring 3,000 metres above German territory on reconnoitring work. Suddenly a shell burst near it, killing the pilot instantly, severely damaging the machine, but not injuring the observer, Lieutenant Howey, in any way. The aeroplane tipped nose downwards, and fell 2,000 yards. Howey, during this terrific fall, performed a veritable gymnastic feat. He succeeded in slipping from his place to that of his comrade, unclasped his dead hands, sat upon his knees, and, in spite of the appalling situation, seized the control-lever, and in a miraculous manner righted his machine just at the moment it reached the earth after a seeming plunge to death. Howey was taken prisoner, but he was uninjured.'

## CHAPTER XXIX

### THE EYES OF OUR ARMIES IN THE FIELD

HERE we come into still closer contact with the work of the Royal Flying Corps on the various battle-fronts. On September 3, 1916, the fighting in the air on the Western Front was continuous. Again the enemy's aircraft were forced to remain some miles in rear of their own lines, and entirely failed to interrupt the work of our machines. On two separate occasions our aeroplanes opened fire on the enemy's troops on the ground. As a result of many combats, three hostile machines were brought down and many others were driven down in a damaged condition.

On the previous day, in spite of the very unfavourable weather conditions, our aeroplanes carried out successful co-operation with our artillery. One of our patrols, consisting of four machines, encountered

and drove off a hostile patrol of thirteen aeroplanes. A few days later British machines bombed an important railway junction on the enemy's lines of communications, causing great damage to the station and rolling stock. One of the enemy's aerodromes was bombed, one machine being destroyed on the ground and others damaged. Many other points of military importance were bombed. Some good work was also done from low altitudes, locating the positions reached by our troops. Three hostile machines were wrecked and four others driven down in a damaged condition.

Again, on the fifteenth of the month our pilots kept up constant and successful co-operation with our artillery and infantry, and frequent and accurate reports were furnished of the course of the battle. Hostile artillery and infantry were effectively engaged by our aeroplanes with machine-gun fire. Many bombing attacks were also carried out against hostile aerodromes and railway stations, in the course of which troop trains were hit and transport railway sidings attacked with machine-gun fire. A German kite balloon was brought down. The total number of hostile aeroplanes destroyed was fifteen.



Nine others were driven down in a damaged condition.

On the twenty-second of the month there was again great aerial activity. A highly successful raid by about fifty of our machines was carried out on an important railway junction, where much damage was done, two trains containing ammunition being destroyed and many violent explosions caused. A number of other raids on enemy railway works and sidings, aerodromes, and other points of military importance were equally successful. In addition many fights took place in the air, in the course of which three hostile machines were destroyed, and five others driven to earth in a damaged condition, besides many others which broke off in the middle of the fight and were seen to be descending steeply, but could not be watched to the ground owing to our machines being too busily engaged. On the following day five bombing attacks were carried out by our aviators against railway stations on the enemy's communications. Much damage was done. In the course of an air fight one of our aviators collided with his opponent. The hostile machine fell vertically. Our machine fell for several thousand feet, when the pilot managed to

regain control and re-cross the lines, safely flying over thirty miles with an almost uncontrollable machine.

The month closed in brilliant fashion for our Flying Corps. On the thirtieth, two of the enemy's aerodromes were successfully bombed by our aeroplanes, and at least one machine destroyed. In the fighting over the front, four enemy machines were brought down. Enemy troops and transport were repeatedly attacked from the air with machine-gun fire, and in one case several hundred infantry were dispersed. Another enemy kite balloon was brought down in flames. There were many fights in the air, in the course of which two enemy machines were destroyed and many others driven down. On this particular day we suffered no losses.

Referring to the work of the month, Sir Douglas Haig said: 'Our aircraft have shown in the highest degree the spirit of the offensive. They have patrolled regularly far behind the enemy's lines, and have fought many battles in the air with hostile machines and many with enemy troops on the ground. For every enemy machine that succeeds in crossing our front, it is safe to say that 200 British machines cross the enemy's front. A captured Corps

report described our aeroplanes as *surprisingly bold*, and their work has been as conspicuous for its skill and judgement as for its daring.'

The opening days of the following month were unfavourable to aerial activity. On the tenth, however, our aeroplanes showed activity and destroyed, by bombing, two enemy battery positions, and damaged many others. They penetrated well behind the enemy front and bombed railway stations, trains, and billets with good effect. There was now much fighting in the air, and in one case two of our machines engaged seven hostile aeroplanes and drove down or dispersed them all. One of these hostile aeroplanes was seen to be destroyed and two others severely damaged.

The clear weather of the middle of October, 1916, gave scope for great aerial activity. On the seventeenth our machines made a large number of reconnaissances and bombed enemy railway lines, stations, billets, factories, and depots. There were numerous fights in the air, three enemy machines being destroyed, another driven to earth, and many dispersed. Two more enemy kite balloons were attacked and forced down, one being afterwards seen in flames.

Later in the same month, in spite of adverse weather conditions, our aeroplanes co-operated successfully with our artillery. This indeed has been one of the chief parts played by our heroic airmen. They have acted as 'the eyes of our artillery,' observing, directing, and reporting as only efficient aviators can.



## CHAPTER XXX

### RUSSIAN PRAISE AND RUSSIAN ACHIEVEMENTS

THE Russians have been most generous in their praise of the work done by the Allied aviators in France. A correspondent of the *Bourse Gazette*, writing in the *Daily Chronicle*, has said: 'One need only stay at the British front one single day to be convinced that the verdict is right. The Allied aviators dominate the air. This is a phrase no longer. It is as much a reality as the British Battle Fleet or the Allied artillery. The Allied aeroplanes are everywhere. They guide and direct the artillery fire, make bold reconnaissances, photograph the enemy positions before and after the bombardments, fill the enemy trenches with grenades, and combine with the infantry to attack the German fortifications. During the first two months of

the Somme offensive the British aviators covered more than 100,000 miles in the air, and that in spite of the fact that for a whole fortnight there was no flying at all because of the heavy mist and rain. According to careful military statistics, the British airmen covered not less than 1,000,000 miles over the German lines in the first two years of war.'

The correspondent of the *Bourse Gazette* goes on to remark that the history of the struggle for mastery in the air is very instructive. 'At the beginning of the war the supremacy in aviation undoubtedly belonged to the British and the French. But during the first year of the war the Germans, availing themselves of their superior industrial organization, went ahead of the Allies. For a brief period German aviation surpassed not only the British and French aviation separately, but both combined. That period coincides with the appearance of the Fokkers and the activity of Immelman and other prominent German pilots.'

But the Germans, as we have seen, could not maintain their superiority. Towards the end of the second year, the supremacy passed to the Allies once more. By the quantity and quality of their

machines, as well as by the quantity and quality of their pilots, the British and French now so much surpass the Germans that at present one can speak of the absolute superiority of the Allied aviators.

‘The Allied aviation,’ the writer in point continues, ‘is divided into three separate branches or three kinds of fighting—the attacking battle-squadron, something like aerial cavalry; the scouts, rather like aerial infantry; and a division of aerial photographers. The pilots of the aerial battle-squadron are the real fighters of the air. Most of them are young. And the lives of all of them are filled with unprecedented adventures.’

Of all branches of aviation, however, the most important in the estimate of the writer of the article is that of photographing from an aeroplane: ‘Before the bombardment of any enemy position, the head quarters make a detailed map, drawn up from photographs taken from the aeroplanes. Then, while the bombardment is in progress, the aviators continue to take photographs of the position at fixed intervals. The bombardment continues until the photographs taken by the aviators show them all the *points d'appui* of the positions have been demolished. I saw

these photographs and the maps of the German positions prepared from them. The making of these photographic maps is one of the greatest technical miracles of the present war. But its realization demands indomitable courage and sangfroid. Photographing the enemy positions is at once the most ingenious and the most dangerous of aerial operations. The aviator-photographer having risen to a great height above the enemy position, settles his aeroplane almost vertically above the position he is going to photograph. Descending a certain distance, he arranges his camera, takes his photograph of the German defences, and at once climbs up at top speed in order to regain his own lines. One can imagine with what a fire the Germans meet their uninvited visitor. All the while his dizzy manœuvres over the German positions are going on, he has to face the fire of anti-aircraft guns, machine-guns, and rifles.

‘As I stood on a hill,’ the writer of the article continues, ‘I noticed a tiny spot in the sky far above the German lines, around which small white clouds exploded. I asked my officer-companion if this was a fight between aeroplanes in the air. “No,” he said, “it’s our man photograph-



ing the German positions, and the Germans are firing at him from their trenches." . . .

'All day long the British aviators rushed through the air. At certain moments, when they closed together, I could count up to thirty aeroplanes. From below they appeared like a flight of some mighty birds. Several of them evidently formed an aerial patrol. They circled round the kite balloons. The others flew away, singly or in groups, to the line of the German trenches. During the whole day only one single German aeroplane flew over the British lines and tried to attack a kite balloon. But it was driven off by the aerial patrol.'

As regards the praiseworthy work done by Russian aviators, it is noteworthy that on September 14, 1916, a squadron of four Russian giant aeroplanes of the Slys-Murometz type bombarded the German seaplane station on Lake Angern, in the Gulf of Riga. Seventeen seaplanes of various sizes and models were discerned. The Russians dropped seventy-three bombs, of a total weight of sixty-two poods (about one ton). The sheds were soon concealed in smoke and flames. Eight enemy seaplanes attacked the Russian machines, but were speedily put to flight

by machine-gun fire. As the result of the bombing and the air fight not fewer than eight enemy machines were destroyed or put out of action. The Russians returned safely, notwithstanding a hail of incendiary shells from anti-aircraft guns. On a previous occasion one Slyr-Murometz and one Ilya-Murometz, with a crew of five, routed seven attacking German seaplanes.

On the twenty-ninth of the same month Russian aviators carried out a raid on the rear of the enemy's cantonments in the Bourgunt Krevo district (about forty-five miles south-east of Vilna). The bombs dropped caused explosions and fires in the enemy's depots at various points. Bombs were also dropped on convoys, a narrow-gauge railway, and on wagons. In the course of the raid there was an air fight in which four German machines were brought down.

Russian airmen who call for special mention are Sub-Lieutenant Orloff, Lieutenant Gorkovenko, Captain Kayakoff, Captain Schiffkoff, and Midshipman Safonoff. Captain Schiffkoff in particular has many aerial victories to his credit.

## CHAPTER XXXI

### ITALY'S PART

ITALY has fought many air battles. Her sons are men of the right mettle. Her beautiful cities have suffered from raids, but the enemy has been made to pay the price. Italian airmen have not only put up a strong defence, but have made their power felt far beyond Italian territory.

On September 13, 1916, enemy aircraft bombarded Venice, Pordenone (thirty-five miles north-east of Venice), Latisana, Marano, Cervignano, and Aquileia on the marshland between Venice and the Isonzo. The Italians replied with a raid on Trieste and Parenzo, in which French aviators took part. With the departure of heavy Capronis for Trieste, squadrons of seaplanes set out from sea-bases for Parenzo. Five French machines joined forces with eleven Italian seaplanes. Shortly after 5.30 p.m. the first of them were over Parenzo, dropping explosive and incendiary bombs on the enemy's defence batteries

and seaplanes station. Only one enemy 'plane succeeded in getting off the water, and was immediately forced to come down by the attacks of the French aeroplanes and to take refuge among a squadron of Austrian torpedo-catchers, which continued to hug the coast. In spite of the lively fire of Austrian army gunners, all the allied aeroplanes returned to their bases. For a long time on their return journey could be seen the useful effects of the bombing carried out by the Italian and French pilots in broad daylight, the hangars and batteries being shrouded in the smoke from the fires. Scrupulous care was taken not to do damage to the unredeemed city. The Caproni squadron arrived over Trieste about 4 p.m., and, supported by other squadrons of light machines, began from some 9,000 feet the bombardment of the arsenal, the technical dockyard offices, the timber yards, and the depots housing the rolling-stock and kerosene supply, this latter at St. Sabba. Photographs and the dense columns of smoke showed with what results !

On the thirteenth of the same month an Italian aeroplane squadron fought a hotly contested battle, in the course of which two enemy 'planes were brought



down. On the seventeenth of the same month, Italian aviators scored further victories. On the same day an Italian squadron dropped bombs on the works and sheds of the narrow-gauge railway in Comignano (Komen on the Carso, ten miles south-east of Gorizia). Effective results were observed. It was also on this day that another squadron of Caproni battle-planes, escorted by Nieuport chasers, dropped bombs on the stations at Dottoglianò (about eight miles north of Trieste), and Scopo (about two miles farther north), on the Carso, hitting the railway establishments, the adjoining stores, and the water tanks and trains standing in the stations. All the Italian aeroplanes returned safely, although chased by the enemy and fired on by anti-aircraft batteries.

Later it was made known that Italian squadrons of seaplanes in the course of a general reconnaissance, carried out by them along the west coast of Istria on October 16, succeeded in spite of unfavourable weather in successfully bombarding detached naval units near Rovigo, as well as military works at Rovigo and at Punta Salvore. At one point they became engaged in a fight with enemy aeroplanes,

and damaged two of them, one of which was seen to fall into the sea. In spite of enemy artillery fire all the seaplanes returned safely to their bases.

On the first day of the next month, Italian aviators engaged in numerous further air fights, in the course of which several enemy machines were driven down. On the same day fourteen Italian battleplanes, escorted by Nieuport chasers, bombarded with marked success the railway stations of Nabresina (coast railway, Gulf of Trieste), Dottoglianò, and Scopo (on the Gorizia-Trieste Railway), on the Carso. The aviators were fired on by anti-aircraft guns and attacked by enemy aeroplanes, but all returned safely to the Italian lines.

Again, on November 8, 1916, squadrons of Italian aircraft carried out an offensive reconnaissance on the enemy coast. Bombs were dropped with good results on the aviation station at Parenzo-Istria, and on craft used for military purposes in the harbour of Cittanuova. In spite of the violent fire of the anti-aircraft defences and of a counter-attack by enemy seaplanes, all the machines returned safely.

Many battles in the air were fought during the days that followed, various enemy machines being driven down by the

skilful Italian aviators. Amongst those who have earned special notice are Lieutenant D'Annunzio, the son of the poet; Second-Lieutenant Garros; Capitaine de Fregate Arturo Ciano; and Baron Mario de Bratti, of the old nobility, who lost his life while serving his country. His funeral was attended by all connected with the Italian Aviation Corps and the technical and constructional side of the science, from General-in-Command to mechanics and artificers, so widely was his loss felt.

## CHAPTER XXXII

### ENEMY ACTIVITY

IN November, 1916, a series of brilliant conquests by British and French aviators had reduced the Germans to a secondary, if not actually a futile, part in the air. But after a period of bad weather and a lull in the fighting, German aviators again ventured over the Allies' lines. Their enterprise, however, was short-lived. Proof of the Allies' superiority was again seen on November 10 in an important aerial victory over the German lines. Thirty British machines defeated a greater number of the enemy—his strength is believed to have been between thirty and forty—while on a bombing expedition between Bapaume and Arras. The fact worth remembering is that the British airmen were not turned off, but that they punished their assailants decisively and then fulfilled their obligations as ordered, delivering seventy-two high explosive bombs on Vaulx-Vraucourt with satisfactory effect.



‘It is a pity,’ writes Mr. Percival Phillips, special correspondent of the *Daily Express*, ‘that such a thrilling episode of aerial warfare cannot be told in detail—but there are very few details to be had. The only eye-witnesses at close range were the intrepid airmen involved, who were so fully occupied with their own individual opponents that it was impossible to follow the fortunes of the entire enemy fleet until its ignominious disappearance. I am told, in the dry, matter-of-fact language of our airmen, that the British bombing ‘planes, flying at pre-arranged altitudes in a westerly wind, surrounded by their escort, sighted the German battle machines climbing through the rising mist to try to intercept them. The British fleet dropped to accept battle, and they closed a mile above the German trenches.

‘Then followed a breathless, furious duel, fought at a dizzy speed as the opposing ‘planes swirled and eddied through the clouds, intent on each other’s destruction. Machine-gun bullets ripped their hulls. They circled and dived with amazing confidence and accuracy. British and Germans alike drove their craft with superb skill, for the science of fighting in the air has become as intricate and difficult as

handling a group of Dreadnoughts. No longer do the aeroplanes barge blindly at each other, firing point-blank, like old ships of the line. The expert crews twist and dodge in a manner undreamed of even a few short months ago, working their guns with nice discrimination, perhaps putting in one skilful shot where the pioneer guns of the air would have wasted half a drum. The battle was won as much by good airmanship as by the work of individual gunners. The German pilots were out-manceuvred. When at last their machines had enough of the fight—three of them had reeled earthwards, smoking wrecks—they dropped beyond range to examine their wounds, and the victorious British fleet passed on its way, in full view of the great army of spectators gazing upwards from the fields, road, and trenches below.’

Besides the three German ’planes destroyed, others were sent down more or less damaged, but the full extent of the enemy casualties could not be ascertained. A broken aeroplane does not drop like a stone. It takes three or four minutes to reach the earth, and there is not time during an engagement for the men who are fighting to follow the progress of every crippled machine in its aimless descent.

The British casualties for the day's work were two bombing machines and two escorting machines missing, one observer killed and two pilots wounded. Of the latter, one managed to alight inside the British lines; the other came down in 'No Man's Land.'

The special correspondent of the *Times* describing the same battle writes: 'It is a long time since the German initiated anything new in the air. Now, in his recrudescence of activity he is doing his best to learn from us. He copies exactly our methods, formations, and air tactics. In the recent moonlight nights especially his airmen have been penetrating behind our lines, trying to bomb rail-heads and transport, and so forth; and individual Germans are even getting so bold as to do what we have done for the last four months, namely, fly low enough to use their machine-guns on troops in trenches or on columns on the road. So far, they are making little by it; and they are having a most exciting time. One of the chief evidences of the new activity has been the great aerial battle, wherein some seventy aeroplanes were engaged, which the official communiqué has already mentioned. It took place between nine and

ten o'clock on the morning of November 9, well over the German lines in the direction of Vaulx-Vraucourt, whither certain of our aeroplanes were bound on a bombing expedition. With them were fighting machines and scouts, making in all a fleet of thirty sail. Near the villa of Mory, just before reaching Vaulx-Vraucourt, they sighted an enemy squadron somewhat outnumbering themselves, the actual strength being something from thirty-six to forty aeroplanes.

'They attacked at once. Some of our machines were flying at a higher level than the enemy, and they plunged headlong to join in the general engagement, which was fought at an average height of not much above 5,000 feet. Of the mêlée which followed, it is impossible to get any coherent account, for no man in it had time or thought for anything except the enemy machines with which he was successively engaged; but for twenty minutes there raged among the clouds such a battle as the world has never seen before: an inextricable tangle of single combats, of darting, swirling machines, the air filled with the roar of seventy propellers and the chatter of guns.

'Four of our machines were lost, that



is to say, that they were compelled to descend in German territory, a strong westerly wind drifting the battle as it raged more and more over enemy's soil. In the ships which came home, one brought a dead observer, and two others, with wounded pilots, had difficulty in beating up against the wind and landing in our lines. Of the enemy we know that six machines were sent to earth, of which three are known to have crashed. What happened to the other three, beyond that they were falling out of control, is not known. In yet another the pilot was seen to be shot dead. What further casualties the enemy suffered he only is aware ; but the best evidence that the victory was ours lies in the fact that the whole enemy formation was broken and scattered. The Germans fled for safety in all directions, leaving us in possession of the sky. Then we went upon our business ; we punctually dropped our bombs on the stores and ammunition depots of Vaulx-Vraucourt, and then came home proudly flying in regular formation, no German daring to interfere.'

Again and again the Germans have made desperate efforts to snatch the control of the air from the firm grasp of the Allies,

but without the desired result. The Allies' aviators are not to be beaten. Their enterprise, their courage, above all their heroic bearing, are proof against all attacks.

## CHAPTER XXXIII

### A GENERAL VIEW

‘ANY unbeliever in the reality of the command of the air being in the hands of Britain and her Allies,’ writes the editor of *Flight*, ‘must indeed be despaired of, after the daily records of the wonderful work of our pilots which are issued officially, combined with the unstinted paeans of praise emanating from every imaginable source upon this and the other side of the world. Quite recently again, Mr. H. G. Wells repeated his admiration of the Allies’ air-work; at the same time he entered the lists with General Brussiloff as prophet as to the duration of the war, Mr. Wells putting it at June, 1917.

Mr. Wells’ reasons for his prophecy are as follows: ‘I think so for a hundred reasons, but above all for these: The marvellous organization of the French front, the mastery of the air which is assured to our aviators—I was witness of

it, and I should rather say the exclusive possession of the air. Then the photographic marking by aeroplanes, in which the French take first rank. Lastly, by your artillery fire, which demolishes, methodically and mathematically the enemy batteries without fear of reprisals.'

An interesting communication upon the same subject has just come to hand from the well-known correspondent of the *Chicago Daily News*, Mr. Edward Price Bell, in which he states that the British flying man is in the air every day between four and eight hours, constantly under fire. Ordinarily along the British front the flying men are in the air from two to three hours each day. Mr. Price Bell hits upon the basic reason for our superiority when he points out that our officers are always 'hunting for trouble' above the German lines, never declining a combat, and fighting, however outnumbered. Altogether he calculates that up to the latter part of 1916 British flying men on the Western front must have flown entirely over the enemy's lines much more than a million miles.

An officer of the Royal Flying Corps, also writing of the supremacy of the Allies, says: 'Man for man, we undoubt-



edly are masters of the air on the west front. This fact I attribute to the mental and physical training we give our boys in England. Our youngest pilots have done wonderfully well. They learn quickly, are intensely keen, have great alertness of mind and act instinctively.'

'Our people have the tails up morally and mechanically,' adds another, 'and though they have plenty of fighting when they get to the other side of the lines, they are on the offensive all the time. The moral as well as the physical uplift is considerable, when one has a machine which will get above the German range of accurate fire in a quarter of an hour, and will do in or about 100 miles an hour when pushed. With such a machine one can attack and keep on attacking; and though perhaps not even the majority of our people are mounted on such machines, the worst machine at the front to-day is probably nearly as good as the best a year ago, and there are enough of the first-class machines to protect the weaker brethren. Despite all the errors of the past, our air service has certainly acquired dominance, if not absolute command, in the air, and for that fact very great credit is due to the officers who have so thoroughly reorganized

affairs at the War Office, and who have so notably increased the performance and output of the machines now in use.'

The great improvement in the construction of machines for long-distance flying is particularly worthy of note. We have seen how Captain de Beauchamps, leaving France in the morning, flew in broad daylight as far as Munich, where he dropped bombs on the stations. Then turning at right angles towards the south, he flew over the whole of the Tyrol and crossed the Alps, to land at length  $12\frac{1}{2}$  miles north of Venice, in the village of Santa Dona, on the small River Piave, having journeyed without stopping a distance of about 700 kilometres.

Captain de Beauchamps holds the flight record for bombing raids on German towns, but the longest journey made by an Allied aviator during the war was that of Lieutenant Marchal, who visited Berlin on a previous date. He, however, only dropped pamphlets on the German capital, before making off to the Russian frontier. He came down sixty miles within the German lines, having flown over 800 miles.

Captain de Beauchamps was accompanied in his great flight to Essen by Lieut. Daucourt, who made at the time some

extremely interesting entries in his log-book :

‘ 11 a.m. My friend Beauchamps has just gone, and I followed two minutes later. One thousand yards up, 2,000–3,000, we keep on getting higher and higher. The weather is clear with just a few clouds over 9,000 feet. The air is distinctly cold.

‘ 12 a.m. I am full over the Boche lines. We are seen and the anti-aircraft guns start a curtain fire a little forward but too high. The white puffs of the 77 make a line of smoke which I have got to cross. Soon the shots become more and more numerous; 300 shots at least must have been fired in a few minutes. Time after time I get right into the smoke of the bursting shells, and I can hear pieces of steel whistle near, very near. Oh! the Boche gunner rectifies his range. But he is too low now, so I go higher still, and I pass . . . Now there are shots on my left, which burst with black smoke, 105 calibre shells. This is getting more serious. Shots get nearer, I point towards the left slightly, and, all of a sudden, I go ninety degrees to the left and drop straight towards the ground for 300 feet. The game is finished and the gunners done. Out of spite they shoot all over the place, and the shells

burst now at the back of me. It looks as if I was going to get out of trouble without much difficulty . . . Now where is my friend? I cannot see him. Has he been brought down? Has he changed his line? A little under me I can see a big, fat yellow 'plane. Black crosses! It's a Boche. Another one follows very near. The distance between us is about 600 feet, but they are slower than I am. Clac—clac—clac. It is Mr. Boche opening fire. The short bursts of his machine-gun keep crepitating. The brute does not shoot badly. Shall I engage him in a fight? It is really very tempting. But no, Essen is my only target, and I have no right to compromise, by a passing engagement, the success of our raid. I open my engine right out, and soon lose my aggressors. . . . As I fly over Treves I just distinguished on my left the outline of another 'plane. It is getting nearer and nearer. The sun prevents me from seeing it clearly, although I seem to recognize the silhouette of my companion's machine. No doubt it is he. I can now see his blue, white and red cocarde. And all of a sudden I feel very happy . . .

'A little later I change my direction and go straight north, leaving Coblenz on



my left. Far in front of me I can see a small grey ribbon . . . The Rhine. It looks beautiful from up here. Somehow my confidence increases every minute. Sure everything will go well. I cross over the right bank. On the river many long convoys of barges go up towards Coblenz. If only I did not have a consignment of bombs to deliver, I should go down to gun them. It is funny how strong these temptations are. . . . Here is Bonn. My friend and co-raider is still on my right. My engine keeps on turning merrily, and I marvel at the ease with which I have covered these first 200 kilometres. A quick calculation shows me that we are going at the rate of about 130 miles an hour. It is a goodish speed. The weather is cold up here. My thermometer shows sixteen degrees below zero. To try and get warm I move arms and legs as much as I can in that cramped space. A few drops of peppermint which I drink warm my inside and cool my mouth . . . Underneath the Rhine, and still more boats! . . . Now we pass a town which seems enormous. It is Cologne. What a splendid target it would make! But there are women, children, old people, and I am a soldier, not a pirate. I must only aim at

destroying the military power of the enemy. Now I point straight towards Dusseldorf. But all the district disappears under a pool of smoke. What an extraordinary agglomeration of works! Here are Solingen, Elberfeld, Barmen, black country criss-crossed by innumerable railway lines and with hundreds of high chimneys, like guns, pointing to the sky. Down there a tremendous amount of arms of all sorts, guns, munitions, &c., all to be directed against us, are produced with a tremendous activity.

‘Essen at last. I am over what has been considered as the heart of Germany, over the town which stands as the symbol of brutal force. Where now are the Krupp’s works? There, at the west of the town. How large they are! The shops and buildings, between which trains are running, seem innumerable. The attempts to disguise it are indeed foolish. It is the most perfect target one can imagine. Now I suppose I am going to be *strafed*. I look here and there for bursting shells. Nothing! They aim too low. However, some very violent waves of air of which I do not understand the cause disturb for a moment my bombing preparations.

' 2 o'clock. The centre of the works pass. I drop my torpedoes in rapid succession. My friend, who is over me and a little on the left, drops his also. I guess, more than I can exactly see, as I am so very high, that underneath in the works the people suffer from a sort of madness. There are rushes of people soon hidden by clouds of smoke which rise from many points. Nearly at the centre it seems that there is a formidable explosion, followed by intense fire. What a joy to have attained one's aim! Krupp has been bombed, in full daylight, in spite of its anti-aircraft guns and of its 'planes. I suppose that now the Boches must be mad with fury, and will try to chase us. Never mind, my mission has been fulfilled. I will fight enemy 'planes if they come . . . Here I am again over Dusseldorf, but not going so fast as in coming. The wind, which has veered, hampers me. A quick verification of my oil and petrol tanks. All is well; I can keep up for another six hours. The clouds get denser and denser. There is at some moments a thick mist, which veils completely the ground. As I am browsing, some explosions thunder louder than the noise of my engine. I turn right round, so that the Boche gunner

loses the range. But as I turn I see 1,500 or 2,000 feet under me three Boche 'planes who are giving chase. Their machines are as fast as mine, but as soon as they try to go up they lose ground. I slacken for a few seconds, and going straight towards the most forward of them, I serve him at about 150 yards with three bursts of my machine-gun. Unnerved, he prefers not to engage a fight and flies towards the left. But the others are attacking me from the back. It is time to go . . . Have I wounded my opponent? I don't think so, as he seems to be flying straight again, but very much lower. Soon the two others are only black spots . . . The chase has lasted over thirty minutes, and I have got a real stiff neck, so often did I turn round . . . Now I have been up six hours. Time drags dreadfully. My eyes hurt, and I suffer from the cold. Evidently I am over Belgium now. But where? I must know. I come down, engine stopped. How sweet is that silence, after six hours of tempest! Four thousand feet; it is low enough.

'6.30. I cannot stand it any more, I am coming down, 7,000 feet, 5,000 feet, 1,000 feet. I cannot hear the guns any more. But what are these? Bivouacs. Am I in France? I keep on for another



quarter of an hour, going south, and finally alight in an immense field, far from a village. If I am on the territory invaded by the Germans I'll fly away under their nose. I am at the end of the field, ready to start again in case of need. I have kept my engine turning slowly. After five minutes of waiting, some people come running towards me—peasants. I shout to them at the top of my voice, "Where am I?" "At Champaubert," they answer me. What a joy is mine! I am in France. Back, after having succeeded in what seemed to men an impossible enterprise.'

It is particularly interesting to note that in their remarkable flight both Captain de Beauchamps and Lieutenant Daucourt used machines of British manufacture.

We have seen that the officers and men of the Royal Naval Air Service have also to their credit many long-distance flights. Indeed, in all respects the R.N.A.S. have kept at 'level-fight' with the R.F.C. The two Services work, however, under different conditions. The following is an extract from a report from Admiral Sir John R. Jellicoe, G.C.B., G.C.V.O., then Commander-in-Chief, Grand Fleet: '*Iron Duke*, August 23, 1916. Sir,—With reference to my dispatch of June 24, 1916, I have the

honour to bring to the notice of the Lords Commissioners of the Admiralty the names of officers who are recommended for honours and special commendation. Where all carried out their duties so well it is somewhat invidious and difficult to select officers for special recognition.'

We have seen, however, that many naval aviators have been decorated. In addition to the names already given, mention must be made of Flight-Lieutenant F. J. Rutland, who has been decorated with the Distinguished Service Order for his gallantry and persistence in flying within close range of four enemy light cruisers, in order to enable accurate information to be obtained and transmitted concerning them. Conditions at the time made low flying necessary.

This is also a fitting place to record that it has been officially announced that the King has conferred the Distinguished Service Cross on Flight-Lieutenant Charles T. Freeman, R.N.A.S., for the following act of gallantry: On the night of August 2, 1916, he made a determined attack on a Zeppelin at sea, only abandoning the attack when he had exhausted all his ammunition. As darkness was approaching at the time, and his chances of being

picked up were problematical, his courage and devotion in returning to the attack a second and third time were exemplary.

There is every indication that our airmen are becoming more heroic and skilful each passing day. Touching their great service in dealing with enemy airships, the editor of the *Aeroplane* writes: 'One of the commonest and cheapest jeers of certain papers which have adopted anti-Churchillism as part of their political creed has been the constant jibe at the late First Lord of the Admiralty that the defence which he promised against enemy airships has not been forthcoming. It is now many, many months—in fact, it runs into years—since Mr. Winston Churchill informed the world that, if enemy airships ventured to invade this country, they would be met by 'a swarm of hornets' which would make them regret that they had ever come.

'At that time the defence of England was entirely in the hands of the Navy. The Army was still piously supposed to be the Expeditionary Force. Naturally, as part of the Navy, the R.N.A.S. was supposed to be responsible for the defence of the country against aircraft; a perfectly logical position, and an eminently sensible

one, for the Navy has always been able to obtain all the money it has wanted for any scheme it might have in hand. Consequently there seemed to be no reason why Mr. Churchill's rhetorical phrase—to which one might have returned the time-honoured question, "Is that a threat or a promise?"—should not have become before long a literal truth. There was one point on which all of us seem to have tripped up, however—namely, that in talking or thinking of invasion by aircraft we all pictured to ourselves a fleet of machines coming over in broad daylight, and the world's aerial navies grappling in full sight, complete with central blue as fitted. None of us seems to have had the sense to see that nocturnal invasions would be very much more effective, both morally and practically, than any daylight show could have been.

' If the Germans had sent their airships over early in 1915, in daylight, they would certainly have been wiped out by aeroplanes. We had very few aeroplanes then; not a fraction of the number we should have had if the supply of engines and machines had been properly handled before the war by the Government. But nevertheless, we had some few, such as Sopwith



tabloids and Bristol scouts, quite capable of reaching and catching and destroying any airship of that period, if it could be seen. The destruction of the very first Zeppelin ever brought down by an aeroplane—that which ultimately wrecked itself after being damaged and made uncontrollable by Squadron-Commander Bigsworth, R.N.—proves it, for this officer was flying a standard 80 h.-p. Avro, a considerably slower machine than either of the single-seaters mentioned. The Germans spotted this quickly enough, and so their ships only came over at night, with the result that for over a year they came and went unhindered, so far as defensive aeroplanes were concerned. The only people who suffered were the gallant young officers of the R.N.A.S., who went up to try to abolish the airships.

‘The Admiralty published openly the names of those killed in these operations. Young Mr. Lord, of Newcastle, was, I believe, the first victim. He was killed in the south of England when trying to land a fast scout in the dark. Much about the same time Mr. Hilliard was killed through the bombs he had on board his Caudron exploding as he landed. Mr. Richard Gates was killed when landing a

Henry Farman in the dark. Mr. Barnes was killed through landing a big Sopwith pusher in the early morning fog after flying all night. There may have been other deaths, but those are all I recall in the early part of 1915. There were many other officers injured, and still many more marvellous escapes. I have been told how an officer jumped out of his machine near the ground, chancing where he fell rather than risk being blown up by his bombs. Another officer had a still more extraordinary experience. He landed on a Caudron, and his bombs blew up. Subsequently investigation showed clearly where his skids first struck the ground. About twenty-five yards farther on was the wreck of the machine and engine, all burnt to bits by the petrol set on fire by the bombs; and about twenty yards farther still was the place where the pilot had finished having a private fire of his own. Seemingly the first shock had jarred and bent the stems of the bombs and released the firing mechanism. The second shock had exploded them, had blown the whole machine to pieces, had burst the petrol tank so that the spirit splashed all over the pilot and caught light, and, finally and fortunately, had blown the pilot clean out of

the machine into some longish grass, where he fell without being stunned, and rolled over and over till he put the flames out. I gather that his worst injury was a rather burned hand, due to his glove falling off while he was beating the flames out on his coat.'

Never must we forget the debt we owe to these heroes of the Royal Naval Air Service. They have played, as we have seen, a most heroic part.

And we would bear in mind the fact that the work of our heroic aviators covers the *whole* field of the World War. In Mesopotamia, for instance, much good work has been done. A correspondent of the *Daily Telegraph* wrote in October, 1916: 'On the night of the 19th one of our aeroplanes raided an enemy aerodrome at Shumran, dropping eight 20-pound bombs, which fell all round a machine, apparently damaging the same, and putting out lanterns left on the ground by the guard, who fled on the aviator's approach. Early in the morning of the 26th two of our aeroplanes successfully bombed a hangar, descending to 100 feet. One of our machines was damaged. A bullet cut a control wire, and the aeroplane "nose-dipped" 1,000 yards, but the pilot succeeded in righting

the machine and landed safely. The Turks, believing they had destroyed the machine, started cheering in the trenches. Several exposed themselves, and were "picked off."

At a later date news came from Mesopotamia of an affair which afforded a striking instance of aeroplanes working in co-operation with cavalry. Mounted enemy irregulars had driven off our camels on the left bank of the river, and were proceeding north-west. Two aeroplanes were sent out with machine guns to attack the raiders. Our aviators soon passed over scattered bodies of mounted men, who were taking cover in nullahs and firing at the machines. These were driven out by machine-gun fire from the aeroplanes, and, breaking into small groups, made for the hills. Several were hit, and three or four killed. During the action our machines flew very low, descending at times to within twenty feet of the ground. After dispersing this body our aviators pursued the raided camels, which were seen being driven towards the hills by troops of irregular cavalry. Fire was opened from the aeroplanes, and the escort immediately abandoned the camels, retiring towards the mountains. A troop of our



cavalry coming up recaptured the camels. The machines and cavalry continued to chase the raiders, inflicting further casualties.

Further reports from the same quarter show that on October 25, 1916, one of our aviators, returning from a reconnaissance, attacked a party of enemy irregular cavalry. After dropping bombs among them, he descended to 800 feet, firing his machine-gun into them, and killing many. In the evening five of our machines raided a cavalry camp by Shattlhai, dropped bombs, and again brought the machine-gun into action, causing considerable loss and panic.

All will remember how our aviators, overcoming many serious difficulties, dropped provisions into besieged Kut, thus enabling our soldiers to prolong their defence.

In Egypt also some very useful work has been done. The Officer Commanding has reported that on September 4, 1916, the Royal Flying Corps carried out a further raid on the enemy's encampment at Mazar. One anti-aircraft gun was put out of action and a number of bombs were dropped with good effect on camps, supply depots, and camel lines. Further reports

showed that on the following day two of our aeroplanes raided the Turkish aerodrome and aeroplane repair section at El Arish. Twelve bombs were dropped with good results. Enemy aeroplanes attacked our machines, but did not close, and only opened fire at long range. They ultimately gave up the fight, and our machines returned undamaged.

From Salonika news came in September, 1916, of an enemy machine being shot down on the seventh and of a second enemy machine being shot down on the following day north-east of Lake Doiran. The days that followed were equally favourable to the Allied airmen.

An account of the sensational landing of a French bombarding aeroplane containing two aviators has come from an officer in the Doiran district: 'A piece of bursting shrapnel having severed one of the control wires of an aeroplane,' he writes, 'the machine began to dive head-foremost and was apparently lost. It was falling within the enemy's lines, to the great delight of the Bulgarians. When within a hundred yards of the ground the observer managed to leave his seat, and succeeded in hoisting himself on to the upper plane of his machine, where, lying on the canvas,

he was able to restore the balance of the machine by moving the plane by hand. The motor controls were undamaged, and as soon as the equilibrium of the aeroplane was restored it was able to return to the Allied lines and land without further mishap, with a bomb still on board.'

Another sensational incident was that of a naval observer in a 'sausage' balloon operating in Macedonia, attacked by two Fokkers, which fired a stream of bullets, piercing the 'sausage' at several points and destroying the telephone. The observer had on board a small machine-gun and a parachute. After having sent the contents of two belts of ammunition at his enemies, the gun jammed. He then threw himself overboard with his parachute, and fell for about 600 feet. At last, however, the parachute opened, and the observer landed safely. After which the balloon was repaired and he went up again.

From the Secretary of State for India news came in November, 1916, of aeroplanes being used in Indian warfare for the first time. Large Mohmand forces (estimated at 6,000) collected on the border opposite Shubkadr, and were dealt with by our aviators with remarkable effect.

Each passing day our heroic airmen add

to their laurels. But it must not be supposed that so much has been accomplished without the loss of valuable lives. Many heroic men—aviators of whom we are prouder than words can tell—have made the supreme sacrifice.



## CHAPTER XXXIV

### THE HEROIC DEAD

‘THOSE who die for their country,’ says the author of *The Wrack of the Storm*, ‘must not be numbered with the dead . . . This death, on the field of battle, in the clash of glory, becomes more beautiful than birth, and exhales a grace greater than that of love. No life will ever give what their youth is offering us, that youth that gives, in one moment, the days and the years that lay before it. There is no sacrifice to be compared with that which they have made; for which reason there is no glory that can soar so high as theirs, no gratitude that can surpass the gratitude which we owe them. They have not only a right to the foremost place in our memories: they have a right to all our memories and to everything that we are, since we exist only through them.’

Amongst the heroic aviators who have made the supreme sacrifice is Lieutenant

William Herbert Stuart Garnett, R.F.C., who was killed while making a flight. While still at the university, Mr. Garnett, who in 1903 took a First Class in the Mechanical Science Tripos, wrote a book on the turbine engine, which went through several editions, and was translated into German. After a brief spell as a master at Eton, he was called to the Bar, and though he did not practise, he produced a valuable book on 'Children and the Law.' Mr. Garnett had made a special study of the National Insurance Act, and joined the legal department of the Commission when it was set up. On the outbreak of war he joined the R.N.V.R., and did valuable work in mine-sweeping for nearly a year. He was a son of Dr. William Garnett, the eminent educationalist.

Many other men of high promise have made the great sacrifice. Captain Keith Lucas, R.F.C., who was killed in a flying accident on October 5, 1916, had already acquired a world-wide reputation as one of the most promising physiologists of the younger generation. Captain Lucas was born in 1879, was the son of Francis Robert Lucas, and was educated at Rugby and Trinity College, Cambridge, of which he became a Fellow in 1904.

He was elected F.R.S. in 1913, and was invited to give the Croonian lecture to the Royal Society even a year before his election to it. Before the war he was fully engaged in both teaching and research work at Cambridge, and was, moreover, one of the directors of the Cambridge Scientific Instrument Company. But on the outbreak of war all this was put aside in order that he might devote his rare instrumental skill and inventiveness to the Flying Services.

Lieutenant Anderson Mann, R.F.C., who lost his life whilst on active service on August 9, 1916, was twenty-one years of age, and was educated at Ardvreck, Charterhouse and Trinity College, Cambridge. Mr. Mann was the best rifle shot of his year in the Public Schools. On the outbreak of war he was gazetted to the Scottish Rifles, and joined the R.F.C. in March last. Shortly afterwards he and his pilot distinguished themselves by bringing down eight German aeroplanes in seven days. They were each awarded the Military Cross for consistent gallantry and skill. Mr. Mann was the eldest son of Mr. John Mann, chartered accountant, of Glasgow and London.

Captain Leslie Charles, R.F.C., who was

killed in action on July 30, 1916, was the second son of Mr. and Mrs. R. Stafford Charles, of Broomfield, Stanmore. He was educated at Stanmore Park, where he took a Mathematical Scholarship for Harrow. At Harrow he became a member of the O.T.C. and the Philatelic Club, and was also head of his house. He left Harrow in July, 1914, and in the following month received a commission in the Worcester-shire Regiment. In May, 1915, he was sent to Gallipoli, and was present at the battles of June 4-9. He was subsequently invalided home, and was gazetted Captain on November 20, 1915. Early in 1916 he joined the R.F.C., and took his pilot's certificate in April. He left for active service on July 5 and lost his life in a combat in the air over the German lines.

Second-Lieutenant J. Hampson Dodgshon, who lost his life on October 1, 1916, at the age of twenty-five, was educated at Westminster, and was a member of the school cadet corps. He joined the H.A.C. in July, 1913, and played Rugby Football for the corps. He went abroad with the H.A.C. in September, 1914, and spent the first winter of the war fighting in Flanders and France. He was invalided home, and on his recovery was gazetted to



a commission in the Surrey Yeomanry. He served for six months in Egypt, and was at the Dardanelles as Assistant Military Landing Officer. On his return to England he declined a post as Assistant Equipment Officer in the R.F.C., as he felt he ought to take a more active part in the war. He obtained his 'wings' in August, and was made an instructor. His commanding officer writes of him: 'His memory will be green for ever.'

Captain Brooke-Murray, another heroic officer to lose his life in action, was educated at Cheltenham College. At school he was a very good shot, and was in the Cheltenham Bisley Eight of 1908, 1909, and 1910. Entering Sandhurst in September, 1910, he was gazetted to the A.S.C. in 1911. He went to France in August, 1914, with the first Expeditionary Force, and took part in all the operations of the 19th Brigade from Mons to the Marne and Aisne, Ypres and Armentières. From April to July, 1915, he was adjutant of the advanced Horse Transport, and from July to October, 1915, he was staff captain, G.H.Q. Afterwards he became embarkation officer, Marseilles, and officer to the Divisional Ammunition Park (April to June, 1916). He was then flying officer

observer to the date of his death from wounds received in action on September 16 in an air combat against three enemy aviators.

The Royal Naval Air Service has lost a valuable officer by the death in a flying accident of Squadron-Commander Dalrymple Clarke. Before joining the R.N.A.S., in 1913, he was in business in London, and prior to that he was an officer of cavalry. After joining the R.N.A.S., he was stationed for some time at Eastchurch, and quickly showed that he was not only a very fine pilot, but had the gift of studying his machine's peculiarities and reporting thereon in a manner which made his tests of high value to the Service. From Eastchurch he was transferred to the Central Flying School, under Commodore (then Captain) Godfrey Paine, R.N., and was appointed an instructor. There he did much useful work, and was responsible for the training of many pilots who have since distinguished themselves on active service. Later on he was appointed to experimental work, and carried out many tests which produced far-reaching results, not only as regards aeroplanes, but also concerning engines,

bomb-dropping, and various scientific adjuncts to aircraft.

Another loss to the Royal Naval Air Service and the country came with the death of Flight-Lieutenant Charles Walter Graham, R.N., D.S.O., who was awarded the D.S.O. for his services on December 14, 1915, when, with Flight-Sub-Lieutenant A. S. Ince as observer and gunner, he attacked and destroyed a German sea-plane off the Belgian coast.

The Royal Flying Corps lost another most promising officer with the death in action of Captain J. O. Cooper, R.F.C., previously reported missing, now stated to have fallen in action. He was twenty years of age, and was the youngest son of Lady Cooper, of Ossemsley Manor, Christchurch, Hampshire. Educated at Lockers Park and Harrow, he returned from Australia for the war. He joined the R.F.C. and got his commission in January, 1915. Captain Cooper was considered by all who knew him one of the most promising men in the R.F.C., and if he had been spared would, it is said, have led a squadron before he was twenty-one.

Further loss came with the death in action of Lieutenant Ian Macdonnell, R.F.C. He obtained his brevet from the

Royal Aero Club as a pilot in December, 1913, after passing through the Bristol School of Flying at Brooklands. Soon after the outbreak of war he was gazetted a lieutenant in his father's regiment, Lord Strathcona's Horse. In March, 1915, he became A.D.C. to Brigadier-General J. E. B. Seely, C.B., D.S.O., commanding the Canadian Cavalry Brigade, and served with them in the trenches, including the battle of Festubert, till he became attached, on probation, to the R.F.C. in September, 1915. He was gazetted flying officer on November 6 of the same year. He met with a serious accident through the failure of his engine in December, 1915. His observer was killed and he himself more or less seriously injured. He reported for duty with the R.F.C. on May 18, 1916. His major in the R.F.C. wrote that he was very skilful, full of daring and gallantry. He was a grandson of Lieutenant-Colonel J. T. Campbell, a Crimean veteran, and his father belonged to a Cadet family of the Macdonnells of Glengarry, which have given so many officers to the Empire.

In the case of another gallant officer, Second-Lieutenant L. C. Kidd, death followed quickly upon brilliant achievements. Shortly before his death he was



awarded the Military Cross. He took his pilot's certificate at Hendon before the war, and was tea-planting in Ceylon when war was declared. He returned as soon as possible, and was at once given a commission in the R.F.C., and, after a short period of home training, went to the front in February, 1916. Since then, with two short intervals of leave, he had been flying continuously at the front.

Amongst other names on the Roll of Honour we would mention Second-Lieutenant J. S. Mitchell, Second-Lieutenant Aubrey F. A. Patterson, Second-Lieutenant Robert Shirley Osmaston, M.C., and Lieutenant Edward Carre.

Second-Lieutenant J. S. Mitchell, R.F.C., was the only son of Colonel and Mrs. Mitchell, of Sandygate, Wath-on-Dearne, Rotherham. He was educated at Bramcote School, Scarborough, and Rugby, leaving there in July, 1914. He went for a tour to Australia and Canada, returning in July, 1915, when he began to work on munitions at Sheffield. In January, 1916, he applied for a commission in the R.F.C., and was gazetted in June, being appointed a Flying Officer on September 4. He died abroad of injuries accidentally received on October 5, aged twenty.

Second-Lieutenant Aubrey F. A. Patterson, R.F.C., who is unofficially reported as having died of wounds while a prisoner of war in Germany, was born in 1895. He was the youngest son of Mr. and Mrs. W. R. Patterson, of 40 Cleveland Square, Hyde Park. Educated at Berkhamsted and Eastbourne College, he distinguished himself as an athlete, and won the swimming championship at Eastbourne when he was sixteen. Within a few days of the commencement of the war he enlisted in the H.A.C., and went out to France at the end of 1914. Returning invalided to England in 1915, he was appointed to a commission in the West Yorkshire Regiment, and was subsequently attached to the R.F.C. He went back to the front in 1916, and became actively engaged in bombing operations, in which he did 'excellent work.' He was brought down on September 17 by a numerous German squadron, and died of his wounds at Osnabrück.

Second-Lieutenant Robert Shirley Osmaston, M.C., was the son of Mr. and Mrs. Francis P. Osmaston, of Stoneshill, Limpsfield, and grandson of Mr. John Osmaston, late of Osmaston Manor, Derby. He was born in 1894, and educated at

Earleywood Preparatory School, Ascot, and Winchester College (Kingsgate House), where he gained the gold medal for gymnastics in 1912. He had a short course of agricultural training after leaving Winchester, and when the war broke out enlisted as a private in the U.P.S. Brigade. In May, 1915, he obtained his commission in the Royal Sussex Regiment, and went to the front on December 1, 1915. Early this year (1916) he was an instructor of Lewis gun training, and later acting-adjutant of his brigade, and was attached to brigade head quarters learning staff work. In April he conducted a raid into the enemy trenches very successfully and without any casualties, and was shortly afterwards awarded the Military Cross. In July he transferred to the R.F.C., and served as observer till he was killed.

Lieutenant Edward Mervyn Carre, R.F.C., who was killed in October, 1916, aged twenty-two, was the youngest son of the Rev. Arthur A. Carre and Mrs. Carre, of the Rectory, Smarden, Kent. Educated at Christ's Hospital from 1903 to 1910, he left as Deputy Grecian and entered the College of the Resurrection, Mirfield, and in 1912 matriculated at Leeds University, whence he obtained an Honour Degree

in Classics. On the outbreak of war he joined the Artists' Rifles, and served abroad, receiving a commission in the Lincolnshire Regiment in March, 1915. Being promoted Lieutenant, he was transferred to the R.F.C. in May, 1916. His commanding officer writes: 'We are all very sorry to lose your son. He has done very good work since joining the squadron, and was really one of my best observers.' His eldest brother, Maurice Tennant Carre, Australian Infantry, was killed at Lone Pine on September 2, 1915. Two remaining brothers, Captain M. H. Carre, M.C., and Second-Lieutenant G. T. Carre, are serving in the Royal West Kent Regiment, and have both been twice wounded.

The Roll of Honour grows as the days pass. Hero follows hero. To give the names of all who have made the supreme sacrifice is impossible; neither can we hope to find fitting words of gratitude and praise.



## CHAPTER XXXV

### CONCLUSION

IN November, 1916, the famous French aviator, Lieutenant Guynemer, brought down his twenty-first enemy machine, thus establishing a new world's record for aerial warfare. The duel was fought at an altitude of over two miles, after a chase of about forty-four miles, and was of a most dramatic nature.

Suddenly Lieutenant Guynemer, whilst flying many miles behind the German lines, sighted a German squadron of two observation aeroplanes with an escort of two fighting machines heading for the French lines. There was nothing to prevent Lieutenant Guynemer giving immediate battle, except the fact that in the event of being forced to land he would fall within the German lines and be taken prisoner. He therefore took refuge behind some friendly clouds until the German

squadron passed ahead of him, and then started the pursuit from behind, closing up sufficiently so that if he should be seen by the German anti-aircraft gunners from below he would be taken for one of the escorting German aeroplanes. For several miles he kept up the pursuit, concealing himself as much as possible from the German machines by keeping behind the clouds.

Then, when the French lines at last appeared below him, he emerged in full view and began the fight. The German machine nearest him chanced to be an observation 'plane, and, darting down on it, he opened his machine-gun fire at an altitude of about 12,000 feet, or just two miles. With unerring aim he killed the observer with his third bullet, and with the tenth the pilot likewise shot out from the machine, the 'plane at the same time beginning its whirling giddy course down towards the French lines. Although the machine was the second one Guynemer had brought down that day, he at once started after the other three, but they, in the meantime, had all disappeared, having apparently turned back at his very first shot. Without further ado Lieutenant Guynemer started in search of his

victims, and succeeded in locating the machine in the ravine of Mocourt.

Amongst British aviators who continue to add to their victories mention must again be made of Flight-Commander Ball, to whose Distinguished Service Order a second bar—the first time such an honour has been conferred—was added in November, 1916. Each passing day brings further evidence of heroic deeds.

On November 29 hostile airships again made a raid over England under the cover of night, but with dire results for the enemy. Two German airships were brought down. An official communication stated that a number of hostile airships approached the north-east coast of England between ten and eleven o'clock. Bombs were dropped on various places in Yorkshire and Durham, but the damage was slight. One airship was attacked by an aeroplane of the Royal Flying Corps and brought down in flames in the sea off the coast of Durham at 11.45 p.m. Another airship crossed into the North Midland Counties and dropped some bombs at various places. On her return journey she was repeatedly attacked by aeroplanes of the Royal Flying Corps and by guns. She appeared to have been damaged, for

the last part of her journey was made at very slow speed, and she was unable to reach the coast before day was breaking. Near the Norfolk coast she apparently succeeded in effecting repairs, and, after passing through gunfire from the land defences, which claim to have made a hit, proceeded east at a high speed and at an altitude of over 8,000 feet, when she was attacked nine miles out at sea by four machines of the Royal Naval Air Service, while gunfire was opened from an armed trawler. The airship was brought down in flames at 6.45 a.m.

One eye-witness has stated that it was just after daybreak when from the east coast a German airship was seen, travelling slowly from the west. As she passed over the coast the sound of heavy firing was heard, and soon, over a low bank of mist some distance out to sea, a great burst of flame was seen and the stricken raider fell blazing into the sea. A little later a British airman flew in from the sea and descended on the coast. He was given a tremendous ovation. Townspeople carried him shoulder high through streets crowded with cheering people, while sirens of shipping shrieked triumphantly.

‘The defence was extraordinarily power-



ful,' said an official report of the raid issued in Berlin. Such praise from the enemy speaks volumes !

At noon on the following day a German aeroplane managed to reach London and drop bombs. But the fate of this raider also was sealed. On its return journey it fell a victim to our gallant French Allies.

Who can now doubt that supremacy in the air is with the Entente ? Whether in dealing with raiders by night or enemy machines on the western battle-front by day, our heroic allied aviators have proved their superiority.

The names of the heroic naval aviators who brought down the German airship in the manner described are Flight-Sub-Lieutenant E. L. Pulling, Flight-Lieutenant E. Cadbury, and Flight-Lieutenant G. W. R. Fane. The first named officer has been awarded the Distinguished Service Order. His age at the time of his heroic deed was twenty-six years. He was formerly in the Government wireless service, and he received his commission in the Royal Naval Air Service on August 21, 1915. Tireless energy and boundless enthusiasm, combined with great courage, mark him out as an aviator of high promise.

Flight-Lieutenant Egbert Cadbury was twenty-three years of age at the time of receiving the Distinguished Service Cross. At the outbreak of war he left Trinity College, Cambridge, where he was studying for the law, and joined the *Zarifa* as an A.B., the vessel being a converted yacht manned mostly by Cambridge men. After nearly a year at sea he entered the R.N.A.S., gained his pilot's certificate, and was stationed on the East Coast. He is the youngest son of Mr. George Cadbury.

Flight-Lieutenant Fane joined the Royal Naval Air Service in July, 1915, as a Flight-Sub-Lieutenant. He came straight from Charterhouse and was only nineteen years of age at the time of being decorated. His fellow-airmen speak of him as a pilot of remarkable skill and courage.

. . . . .

In February, 1917, whilst these pages were in proof, it was announced that the first of the officers named above, Flight-Lieutenant E. L. Pulling, D.S.O., had made the 'supreme sacrifice.'

Another body! — Oh, new limbs are ready,  
Free, pure, instinct with soul through every nerve.

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Heroic airmen and their exploits,